NVLAP Request for Recognition

1) To: Chief of the Office of Engineering and Technology (OET)
   Date: July 6, 2016

2) General Information

a) Contact Information
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b) As set forth in Part 285 of Title 15 of the U.S. Code of Federal Regulations, the National Voluntary Laboratory Accreditation Program (NVLAP) accredits testing and calibration laboratories that are found competent to perform specific test or calibrations, or types of test or calibrations. NIST Handbook 150 presents the basic procedures under which NVLAP operates, and incorporates by reference the accreditation requirements of ISO/IEC 17025, and the handbook contains the general requirements that testing and calibration laboratories must meet if they wish to demonstrate that they operate an appropriate management system, are technically competent and are able to generate valid results.

   NVLAP operates an accreditation system that is compliant with ISO/IEC 17011, which requires that the competence of applicant laboratories be assessed by the accreditation body against all of the requirements of ISO/IEC 17025. The managerial and technical requirements of ISO/IEC 17025

c) Accreditation to ISO/IEC 17025 for laboratories that test products subject to either the certification or Declaration of Conformity (DoC) approval procedure, that are located in countries that do not have a government-to-government MRA with the United States.

d) We are seeking recognition to accredit laboratories in the following non-MRA country: **People's Republic of China, Indonesia**

e) NVLAP has been providing accreditation to laboratories performing EMC testing located within China for more than 15 years. Also, NVLAP has received a request for accreditation for a test laboratory in Indonesia.

f) NVLAP currently has 46 accredited laboratories in China, of which 16 are accredited in the ECT program. The NVLAP process for addressing laboratory performance issues is detailed in NIST Handbook 150-2016, Sections 3.8-3.11, http://www.nist.gov/nvlap/upload/NIST-HB-150-2016.pdf.

3) Technical Qualifications

a) NVLAP is an approved signatory of the ILAC MRA, APLAC MRA and IAAC MRA.

NVLAP does not provide any services other than accreditation of testing and calibration laboratories.

NVLAP seeks balanced representation of interested parties in the operation of its accreditation programs through the transparency of activities and staff participation in professional societies, standards-writing bodies, and symposia.

NVLAP assessors, technical experts and headquarters staff are required to sign the NVLAP Declaration, by which they agree not to engage in any activities that might compromise their impartiality during any phase of the accreditation process. This declaration is designed to fulfill the impartiality requirements of ISO/IEC 17011: 4.3.4, 4.3.6, 6.1.4 and 7.5.3.

b) The NVLAP ECT Program for FCC test methods was established in October 1985 in response to a request from five private-sector testing laboratories. The purpose of the program was to formally recognize laboratories found competent to perform testing in accordance with Title 47 of the U.S. Code of Federal Regulations (CFR) Part 15-Radio Frequency Devices and 47 CFR Part 68-Connection of Terminal Equipment to the Telephone Network.

NVLAP currently accredits 96 laboratories in support of the FCC requirements.

c) NVLAP has a pool of 12 assessors that have a strong background in the accreditation process of EMC/Radio/Telecom testing laboratories. NVLAP conducts periodically training, with the most recent training event held in June 2016. **NVLAP requests that the attached Biosketches of the assessors be kept confidential.**

d) NVLAP has created an ECT program specific handbook, NIST Handbook 150-11, http://www.nist.gov/nvlap/upload/NIST-HB-150-11-2013.pdf, which requires the utilization of the NIST Handbook 150-11A (FCC Checklist) http://www.nist.gov/nvlap/upload/NIST-Handbook-150-11A-FCC-Checklist-2016-05-05.docxfor the review and documentation of the EMC test laboratory's capability. These requirements are used for the accreditation of U.S laboratories, as well as in use for the accreditation of the laboratories that have been accredited in countries outside of the United States.

NVLAP Response to FCC inquiries

1.Please confirm that this is the full list of countries that recognition is requested for. As the FCC will be drafting a public notice and putting the information about the request out for public comment, adding additional countries after the public notice goes out, may require the process to start from the beginning for the additional country recognitions.

NVLAP is seeking recognition to accredit laboratories in the following non-MRA countries: People's Republic of China, Indonesia, India, Philippines, Russia, Switzerland, Thailand, Ukraine

2.In the request submitted it is noted that all of the internet addresses provided in the request are invalid addresses. Please correct the addresses and also provide a PDF copy of each document to be provided in the public notice.

See ATTACHMENT (A2-1) NIST HB 150-2016
http://nvlpubs.nist.gov/nistpubs/hb/2016/NIST.HB.150-2016.pdf
See ATTACHMENT (A2-2) NIST HB 150-11-2013
https://www.nist.gov/sites/default/files/documents/nvlap/NIST-HB-150-11-2013.pdf
See ATTACHMENT (A2-3) NIST HB 150-11A FCC Checklist
https://www.nist.gov/document/nist-handbook-150-11a-fcc-checklist-2016-05-03docx
See ATTACHMENT (A2-4) NVLAP Application Form
https://www.nist.gov/file/305161

3.In the request for recognition it is noted that the information about the assessors has been removed. The names of the assessors and a brief description of their applicable experience will need to be provided for the public notice. The full bio or resume is not required.

See ATTACHMENT (A3) AssessorBio_Short

4.The information provided indicates that there are twelve assessors but information is only provided for eleven. Please identify the additional assessor that may be doing assessments in the identified countries.

See ATTACHMENT (A4) AssessorBio_Cantwell_Long

5.The information provided addresses the ILAC Cross Frontier Accreditation Principles for Cooperation. Please provide more information as to how you would work within the cross frontiers principles for each of the requested countries that already have accreditation bodies. It is possible the test firm accrediting bodies in some of the countries identified in this request will apply to the FCC and become recognized to assess testing laboratories in their own countries. Please clarify how this would be handled if this were to occur and if it is addressed in your procedures.

NVLAP would follow a similar transition process that is being developed for when an MRA becomes operational in those countries, by notifying the accredited laboratories and working in cooperation with the test firm accrediting body to transition the designation of the lab to them.

6.As the FCC recognition is only for Non-MRA countries, please provide procedures that address what steps will need to be taken to transition to an MRA if an MRA becomes operational with any of the recognized countries. Note that if an MRA becomes operational, new accredited testing laboratories will have to be designated to the FCC under the MRA. Testing laboratories already recognized will be required to transition to operation under the MRA. Also, note when a new MRA becomes operational, it is up to the foreign MRA partner as to whether they will accept assessment reports from assessment bodies outside their territory.

A procedure to address the steps that will be taken to transition accredited recognized labs to an MRA process is being developed and we are working to incorporate it into either the management system for a program specific section or under the program specific handbook. In the interim, we have attached the draft procedure for review.

See ATTACHMENT (A6) Draft procedure for the Transition of a Laboratory

7.The information submitted in the request indicates that NVLAP is an approved signatory of ILAC, APLAC and IAAC. Please provide the documents that verify this.
See ATTACHMENT (A7) NVLAP APLAC, IAAC and ILAC Signatory

8.Section A.7 of NIST Handbook 150-2016 addresses subcontracting. Please explain how this subcontracting policy is applied to the FCC policies and procedures.
Please note that NVLAP applies the term subcontracting to any testing that a lab is accredited to perform, yet chooses, for whatever reason, to have another test lab perform the testing. Based on that, ANNEX A.7 addresses how a NVLAP accredited lab references their accreditation when the report contains some test data from a subcontractor. If the subcontracted laboratory is accredited by NVLAP, its NVLAP lab code should be stated.

If the subcontracted laboratory is accredited by a body other than NVLAP, then the name of the accreditation body and the laboratory's number or other unique identifier shall also be stated. NVLAP uses ISO/IEC 17025, Section 4.4.1 to assess that the test labs are meeting the requirements of their customers. Also, they are assessed against Section 4.5.1 which requires that the work be placed with a competent subcontractor. In this case, a competent subcontractor would be one that is accredited and recognized by the FCC.

9.Please explain or provide the procedures for how testing laboratories with branch or satellite facilities are evaluated and the requirements that they must meet.
For testing laboratories that perform testing at locations other than the primary facility covered under the accreditation, these facilities are required to be reviewed during the on-site, and will be reviewed on a case-by-case basis to determine the extent of the on-site review.
See ATTACHMENT (A2-1) NIST HB 150-2016, Sections 1.5.3, 3.2.3.4, 3.3.1.3
See ATTACHMENT (A2-2) NIST HB 150-11-2013, Section 3.3.1.2

10.It doesn't appear that the procedures provided address how language differences are handled at assessments where English may not be the language spoken. Please provide the NVLAP procedures related to how assessments are handled when there is a language difference.
See ATTACHMENT (A2-1) NIST HB 150-2016 Annex D.1.1
During an on-site assessment, if the laboratory personnel do not speak English, the laboratory shall provide an interpreter(s), subject to NVLAP approval. The interpreter(s) will assist the assessor(s) with conversing directly with laboratory management and technical staff and with reviewing laboratory documentation.

11.Please clarify where the procedures identify there-assessment cycle/period for assessed laboratories and what that period is.
See ATTACHMENT (A11) NVLAP Management System Manual, Annex G
Annex G identifies the laboratory accreditation period is valid for one year, and NVLAP conducts full reassessments at intervals not exceeding 2 years.

12.The request submitted indicates that NVLAP currently accredits 96 laboratories in support of the FCC program. Please specify the number testing laboratories by the country in which they are located and provide that information. The individual test laboratory names do not need to be provided.
NVLAP has accredited two additional organizations in support of the FCC program since the original submission, so there is now a total of 98 labs. The following is the breakdown of the number of labs by country:
US- 47
Canada- 3
China- 16
Japan- 20
Korea- 2
Taiwan- 10

NIST HB 150-2016

National Voluntary Laboratory Accreditation Program

Procedures and General Requirements

Warren R. Merkel
Vanda R. White

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National Institute of Standards and Technology
U.S. Department of Commerce

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July 2016

U.S. Department of Commerce
Penny Pritzker, Secretary

National Institute of Standards and Technology
Willie May, Under Secretary of Commerce for Standards and Technology and Director

NVLAP AND THE NVLAP LOGO

The term *NVLAP* and the NVLAP logo are registered marks of the Federal Government, which retains exclusive rights to control the use thereof. Permission to use the term and symbol (NVLAP logo with approved caption) is granted to NVLAP-accredited laboratories for the limited purpose of announcing their accredited status, and for use on reports that describe only testing and calibration within the scope of accreditation. NVLAP reserves the right to control the quality of the use of the NVLAP term, logo, and symbol

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Contents

Foreword

The NIST Handbook 150 publication series sets forth the procedures, requirements, and guidance for the accreditation of testing and calibration laboratories by the National Voluntary Laboratory Accreditation Program (NVLAP). The series is comprised of the following publications:

- NIST Handbook 150, *NVLAP Procedures and General Requirements*, which contains the general procedures and requirements under which NVLAP operates as an unbiased third-party accreditation body;

- NIST Handbook 150-xx program-specific handbooks, which supplement NIST Handbook 150 by providing additional requirements, guidance, and interpretive information applicable to specific NVLAP laboratory accreditation programs (LAPs).

The 2016 edition of NIST Handbook 150 supersedes and replaces the 2006 edition. There are no changes to the technical requirements for accreditation.

In addition to a number of editorial revisions, the following main changes have been made with respect to the previous edition of the handbook:

- incorporation of previously issued NVLAP Policy Guides and updated definitions and references;

- addition of Annex E, which contains the requirements for accredited laboratories wishing to use the Accredited Laboratory Combined ILAC MRA Mark;

- removal of the managerial and technical requirements of ISO/IEC 17025, which were previously contained in NIST Handbook 150 clauses 4 and 5, respectively.

The last item reflects NVLAP's decision to require applicant laboratories to have an official copy of ISO/IEC 17025 in order to proceed with the accreditation process (see the new clause 4 for additional information).

Annexes A through E form a normative part of this handbook, meaning they contain provisions that laboratories must meet in order to conform to the requirements for accreditation. This handbook is available on the NVLAP website (http://www.nist.gov/nvlap) and on request from NVLAP.

Questions or comments concerning this handbook should be submitted to NVLAP, National Institute of Standards and Technology, 100 Bureau Drive, Stop 2140, Gaithersburg, MD, 20899-2140; phone: 301-975-4016; fax: 301-926-2884; e-mail: nvlap@nist.gov.

Introduction

As set forth in Part 285 of Title 15 of the U.S. Code of Federal Regulations, the National Voluntary Laboratory Accreditation Program (NVLAP) accredits testing and calibration laboratories that are found competent to perform specific tests or calibrations, or types of tests or calibrations. NIST Handbook 150 presents the basic procedures under which NVLAP operates, and incorporates by reference the accreditation requirements of ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories.* ISO/IEC 17025 and this handbook contain the general requirements that testing and calibration laboratories must meet if they wish to demonstrate that they operate an appropriate management system, are technically competent, and are able to generate technically valid results.

NVLAP operates an accreditation system that conforms to ISO/IEC 17011, *Conformity assessment—General requirements for accreditation bodies accrediting conformity assessment bodies*, which requires that the competence of applicant laboratories be assessed by the accreditation body against the requirements of ISO/IEC 17025.

Growth in the use of management systems generally has increased the need to ensure that laboratories that form part of larger organizations or offer other services can operate to a quality management system that is seen as compliant with ISO 9001, as well as with ISO/IEC 17025. Care was taken by the ISO Committee on Conformity Assessment (CASCO) to incorporate all those requirements of ISO 9001 that are relevant to the scope of testing and calibration services that are covered by the laboratory's management system. Testing and calibration laboratories that comply with the requirements of this handbook will, therefore, also operate in accordance with the principles of ISO 9001, as stated in the introduction of ISO/IEC 17025.

NVLAP has entered into mutual recognition arrangements (MRAs) with equivalent accreditation bodies that comply with ISO/IEC 17011 and applicable MRA documents. The use of this handbook will promote cooperation among laboratories and other bodies, and assist in the exchange of information and experience and in the harmonization of standards and procedures. This should, in turn, facilitate the acceptance of testing and calibration results among economies worldwide.

1 General information

1.1 Purpose and scope

1.1.1 NIST Handbook 150 sets forth the procedures and general requirements under which the National Voluntary Laboratory Accreditation Program (NVLAP) operates as an unbiased third party to accredit both testing and calibration laboratories.

1.1.2 The NIST Handbook 150-xx series program-specific handbooks supplement the requirements in NIST Handbook 150 by providing additional requirements, guidance, and interpretive information applicable to specific NVLAP laboratory accreditation programs (LAPs).

1.1.3 This handbook is for use by laboratories in developing the management and technical systems that govern their operations. Laboratory customers, regulatory authorities, and accreditation bodies may also use it as a basis upon which to judge the competence of laboratories.

1.1.4 If a testing or calibration laboratory fulfills the requirements of this handbook, it meets both the technical competence requirements and the management system requirements that are necessary for it to consistently deliver technically valid test results and calibrations.

1.1.5 Compliance with regulatory and safety requirements for the operation of laboratories is not addressed by this handbook. Such requirements may be addressed, if appropriate, in the NIST Handbook 150-xx series of program-specific handbooks (see Clause 4).

1.2 Organization of handbook

1.2.1 Clause 1 of this handbook describes considerations that relate in general to all aspects of NVLAP. Clause 2 describes how LAPs are requested, developed, announced, modified, and terminated. Clause 3 contains the procedures that define the accreditation process, including arrangements for granting, maintaining, extending, reducing, suspending, and withdrawing accreditation. Annexes A through E present requirements for referencing NVLAP accreditation and achieving traceability, conditions for NVLAP accreditation, information and requirements for laboratories located outside the United States, and rules for use of the Accredited Laboratory Combined ILAC MRA Mark.

1.2.2 The word *shall* is used throughout NVLAP's documents and describes mandatory requirements for accreditation. The word *should* is used where guidance is provided but does not preclude other acceptable practices.

1.2.3 A note (shown as NOTE in a smaller font) contains additional information intended to assist the understanding or use of the document. Notes may provide clarification of the text, examples, and guidance; they do not contain requirements.

1.3 Program description

1.3.1 The National Voluntary Laboratory Accreditation Program (NVLAP) is a U.S. Government entity administered by the National Institute of Standards and Technology (NIST), an agency of the U.S. Department of Commerce.

1.3.2 NVLAP is a voluntary system that provides a mechanism for the recognition of testing and calibration laboratories based on internationally accepted standards. It identifies competent laboratories

for use by regulatory agencies, purchasing authorities, and product certification systems, and promotes the acceptance of test and calibration results among economies and accreditors to support trade facilitation activities worldwide.

1.3.3 LAPs are established on the basis of requests and demonstrated need. The specific tests or calibrations, types of tests or calibrations, or standards to be included in a LAP are determined by an open process during the development of the LAP (see Clause 2). NVLAP does not unilaterally propose or decide the scope of a LAP.

1.3.4 NVLAP administers its policies and procedures in a nondiscriminatory manner. Access to NVLAP accreditation is not conditional on the size of a laboratory or on its membership in any association or group, nor is it conditional upon the number of laboratories already accredited. NVLAP's accreditation services are available to public and private testing and calibration laboratories, including commercial laboratories, manufacturers' in-house laboratories, university laboratories, and federal, state, and local government laboratories.

1.3.5 NVLAP accreditation is based on evaluation of a laboratory's management and technical competence for conducting specific tests or calibrations. Accreditation is granted only after thorough evaluation of an applicant has demonstrated that all NVLAP requirements have been fulfilled. Fulfillment of requirements is acknowledged by the issuance of a Certificate of Accreditation and a Scope of Accreditation, which details the specific test methods, calibration parameters, or services for which a laboratory has been accredited.

1.3.6 NVLAP operates a management system that meets the requirements of ISO/IEC 17011.

1.3.7 NVLAP accreditation does not relieve a laboratory from complying with applicable federal, state, and local laws and regulations.

1.4 References

The following documents are referenced in this handbook. For undated references, the latest revision applies. When a specific clause(s) of a document is cited, the date of the referenced document is included.

— BIPM/IEC/IFCC/ISO/IUPAC/IUPAP/OIML, *Guide to the Expression of Uncertainty in Measurement* (GUM)

— BIPM/IEC/IFCC/ISO/IUPAC/IUPAP/OIML, *International Vocabulary of Basic and General Terms in Metrology* (VIM)

— ILAC-G21, *Cross-Frontier Accreditation—Principles for Cooperation*

— ILAC-P10:01/2013, *ILAC Policy on Traceability of Measurement Results*

— ILAC-P14, *ILAC Policy ILAC Policy for Uncertainty in Calibration*

— ILAC-R7:05/2015, *Rules for the Use of the ILAC MRA Mark*

— ISO 9000:2015, *Quality management systems—Fundamentals and vocabulary*

— ISO 9001, *Quality management systems—Requirements*

— ISO/IEC 17000:2004, *Conformity assessment—Vocabulary and general principles*

— ISO/IEC 17011, *Conformity assessment—General requirements for accreditation bodies accrediting conformity assessment bodies*

— ISO/IEC 17025:2005, *General requirements for the competence of testing and calibration laboratories*

— ISO/IEC 17043:2010, *Conformity assessment—General requirements for proficiency testing*

— ISO/IEC Guide 2:2004, *Standardization and related activities—General vocabulary*

1.5 Terms and definitions

For the purposes of this handbook, the relevant terms and definitions given in ISO/IEC 17000 and the VIM apply.

NOTE General definitions related to quality are given in ISO 9000, whereas ISO/IEC 17000 gives definitions specifically related to certification and laboratory accreditation. Where different definitions are given in ISO 9000, the definitions in ISO/IEC 17000 and the VIM are used.

1.5.1
accreditation
Formal recognition that a laboratory is competent to carry out specific tests or calibrations or types of tests or calibrations.

1.5.2
Approved Signatory
An individual who is designated by a laboratory and deemed competent by NVLAP to sign accredited laboratory test or calibration reports. An Approved Signatory is responsible for the technical content of the report and is the contact person for questions or problems with the report. Approved Signatories have responsibility, authority and technical capability within the organization for the results produced.

NOTE See ISO/IEC 17025, 5.2.5, and 5.10.2 j).

1.5.3
assessment, on-site
Systematic, independent, documented process for determining laboratory competence and for obtaining records, statements of fact or other relevant information by NVLAP assessors at the laboratory facilities and other places where test or calibration services are provided with the objective of determining the extent to which NVLAP requirements are fulfilled.

NOTE FROM ISO/IEC 17000:2004: Whilst “audit” applies to management systems, “assessment” applies to conformity assessment bodies as well as more generally.

1.5.4
Authorized Representative
Individual who is authorized by laboratory top management to commit the laboratory to fulfill the NVLAP conditions for accreditation (see Annex C). The Authorized Representative reports to NVLAP changes that may affect the laboratory’s capability, scope of accreditation, or compliance with accreditation requirements.

1.5.5
Certificate of Accreditation
Document issued by NVLAP to a laboratory that has been granted NVLAP accreditation. A Certificate of Accreditation is always issued with a Scope of Accreditation. (See also **Scope of Accreditation**.)

1.5.6
competence
Ability of a laboratory to conduct tests and perform calibrations in accordance with the specified standards and to produce accurate, proper, fit for purpose, technically valid data and test and calibration results.

1.5.7
customer
Any person or organization that engages the services of a testing or calibration laboratory.

1.5.8
interlaboratory comparisons
Organization, performance and evaluation of measurements or tests on the same or similar items by two or more laboratories in accordance with predetermined conditions.

NOTE In some circumstances, one of the laboratories involved in the intercomparison may be the laboratory that provided the assigned value for the test item.

[ISO/IEC 17043:2010, 3.4]

1.5.9
laboratory
Organization that performs tests and/or calibrations. When a laboratory is part of an organization that carries out activities additional to testing and calibration, the term *laboratory* refers only to those parts of that organization that are involved in the testing and calibration process. A laboratory's activities may be carried out at a permanent, temporary, or remote location.

NVLAP further defines laboratory as being a physical entity—that is, a testing or calibration facility that is separate and apart physically from any other laboratory whether or not sharing common ownership, management, or quality systems with any other laboratory(s).

1.5.10
LAP
Laboratory Accreditation Program established and administered under NVLAP, consisting of test methods or calibrations relating to specific products or fields of testing or calibration.

1.5.11
management system
Set of interrelated or interacting elements of an organization to establish policies and objectives, and processes to achieve those objectives.

[ISO 9000:2015, 3.5.3]

NOTE A management system of an organization may include different management systems, such as a **quality management system**, a financial management system, or an environmental management system.

1.5.12
measurement assurance
Process to ensure adequate measurement results that may include, but is not limited to: 1) use of good experimental design principles so that the entire measurement process, its components, and relevant influence factors can be well-characterized, monitored, and controlled; 2) complete experimental characterization of the measurement process uncertainty including statistical variations, contributions from all known or suspected influence factors, imported uncertainties, and the propagation of uncertainties throughout the measurement process; and 3) continuously monitoring the performance and state of statistical control of the measurement process with proven statistical process control techniques including the measurement of well-characterized check standards along with the normal workload and the use of appropriate control charts.

1.5.13
measurement uncertainty
uncertainty of measurement
uncertainty
Non-negative parameter characterizing the dispersion of the quantity values being attributed to a measurand, based on the information used.

NOTE 1 Measurement uncertainty includes components arising from systematic effects, such as components associated with corrections and the assigned quantity values of measurement standards, as well as the definitional uncertainty. Sometimes estimated systematic effects are not corrected for but, instead, associated measurement uncertainty components are incorporated.

NOTE 2 The parameter may be, for example, a standard deviation called standard measurement uncertainty (or a specified multiple of it), or the half-width of an interval, having a stated coverage probability.

NOTE 3 Measurement uncertainty comprises, in general, many components. Some of these may be evaluated by Type A evaluation of measurement uncertainty from the statistical distribution of the quantity values from series of measurements and can be characterized by standard deviations. The other components, which may be evaluated by Type B evaluation of measurement uncertainty, can also be characterized by standard deviations, evaluated from probability density functions based on experience or other information.

NOTE 4 In general, for a given set of information, it is understood that the measurement uncertainty is associated with a stated quantity value attributed to the measurand. A modification of this value results in a modification of the associated uncertainty.

[JCGM 200:2012 2.26]

1.5.14
metrological traceability
Property of a measurement result whereby the result can be related to a reference through a documented unbroken chain of calibrations, each contributing to the measurement uncertainty.

[JCGM 200:2012 2.41]

NOTE: The abbreviated term “traceability” is sometimes used to mean ‘metrological traceability’ as well as other concepts, such as ‘sample traceability’ or ‘document traceability’ or ‘instrument traceability’ or ‘material traceability’, where the history (“trace”) of an item is meant. Therefore, the full term of “metrological traceability” is preferred if there is any risk of confusion.

[NOTE 8 from JCGM 200:2015 2.41]

1.5.15
nonconformity
Nonfulfillment of NVLAP requirements for accreditation.

1.5.16
NVLAP Lab Code
Unique numeric identifier that is assigned by NVLAP to each laboratory and used for identification, record-keeping, and database management. (See also Annex A.)

1.5.17
NVLAP logo
The graphic version of the NVLAP acronym. Use of the NVLAP logo alone is reserved for NVLAP. Accredited laboratories are permitted to use the NVLAP logo only as part of the NVLAP symbol. (See also **NVLAP symbol** and Annex A.)

1.5.18
NVLAP symbol
The NVLAP logo combined with the NVLAP Lab Code and type of accreditation activity (testing or calibration). The NVLAP symbol is the graphical representation that an accredited laboratory is permitted to use in referencing its accredited status. (See also **NVLAP logo** and Annex A.)

1.5.19
objective evidence
Data supporting the existence or verity of something.

[ISO 9000:2015, 3.8.3]

NOTE Objective evidence may be obtained through observation, measurement, test, or other means.

1.5.20
proficiency testing
Evaluation of participant performance against pre-established criteria by means of interlaboratory comparisons.

NOTE 1 For the purposes of this International Standard, the term “proficiency testing” is taken in its widest sense and includes, but is not limited to:

a) quantitative scheme — where the objective is to quantify one or more measurands of the proficiency test item;

b) qualitative scheme — where the objective is to identify or describe one or more characteristics of the proficiency test item;

c) sequential scheme — where one or more proficiency test items are distributed sequentially for testing or measurement and returned to the proficiency testing provider at intervals;

d) simultaneous scheme — where proficiency test items are distributed for concurrent testing or measurement within a defined time period;

e) single occasion exercise — where proficiency test items are provided on a single occasion;

f) continuous scheme — where proficiency test items are provided at regular intervals;

g) sampling — where samples are taken for subsequent analysis; and

h) data transformation and interpretation — where sets of data or other information are furnished and the information is processed to provide an interpretation (or other outcome).

[ISO/IEC 17043:2010, 3.7]

1.5.21
quality management system
Part of a management system with regard to quality.

[ISO 9000:2015, 3.5.4]

1.5.22
quality manual
Specification for the quality management system of an organization.

NOTE 1 to entry: Quality manuals can vary in detail and format to suit the size and complexity of an individual *organization*.

[ISO 9000:2015, 3.8.8]

1.5.23
requirement
Provision that conveys criteria to be fulfilled.

[ISO/IEC Guide 2:2004, 7.5]

NOTE NVLAP requirements are mandatory and must be fulfilled to achieve and maintain accreditation. NVLAP requirements are contained in NIST Handbook 150, NIST Handbook 150-xx series, NVLAP Policy Guides, and NVLAP Laboratory Bulletins.

1.5.24
revocation
Removal of the accredited status of a laboratory if the laboratory is found to have violated the conditions for accreditation.

1.5.25
Scope of Accreditation
Document issued by NVLAP to a laboratory that has been granted NVLAP accreditation. The Scope of Accreditation lists the test methods or services, or calibration services, for which the laboratory is accredited. (See also **Certificate of Accreditation**.)

1.5.26
suspension
Temporary removal by NVLAP of the accredited status of a laboratory for all or part of its scope of accreditation when it is determined (by the laboratory or by NVLAP) that the laboratory does not meet the conditions for accreditation.

1.5.27
test method
Defined technical procedure to determine one or more specified characteristics of a material or product.

1.6 NVLAP information

NVLAP makes publicly available the following information through its website, http://www.nist.gov/nvlap:

a) a description of the NVLAP program and the fields of accreditation offered by NVLAP;

b) the documents that set out the requirements for accreditation, including NIST Handbook 150, the NIST Handbook 150-series of program-specific handbooks, and their associated guides and bulletins (see also Clause 4);

c) information about the assessment and accreditation processes;

d) information about suitable ways to obtain traceability of measurement results in relation to the scope for which accreditation is provided;

e) the NVLAP fee policy and schedule;

f) a directory of NVLAP-accredited laboratories, which includes the name and address, accreditation effective and expiration dates, and scope of accreditation of each accredited laboratory;

g) information about mutual recognition arrangements to which NVLAP is a signatory;

h) an analysis of NVLAP's relationship with related bodies (including NIST);

i) various publications and forms for the use and benefit of accredited laboratories, NVLAP assessors and technical experts, and other interested parties.

1.7 Confidentiality

1.7.1 To the extent permitted by applicable laws, NVLAP will protect the confidentiality of all information obtained relating to the application, on-site assessment, proficiency testing, evaluation, and accreditation of laboratories.

1.7.2 In addition, NVLAP and the laboratory seeking accreditation acknowledge and agree that the accreditation assessments and proficiency testing activities conducted by NVLAP are done in accordance with the authority granted to NIST by Title 15 United States Code Section 3710a. NVLAP and the laboratory further agree that to the extent permitted by law, NIST will protect information obtained during application, on-site assessment, proficiency testing, evaluation, and accreditation from disclosure pursuant to Title 15 USC 3710a(c)(7)(A) and (7)(B) for a period of five years after it is obtained.

1.7.3 For the first five years that laboratory information is held by NVLAP, the provisions of 1.7.1 and 1.7.2 will be in force. Information in NVLAP's possession for more than five years will continue to be held in confidence under the provisions of 1.7.1.

1.8 Referencing NVLAP accreditation

1.8.1 The term *NVLAP* and the NVLAP logo are registered marks of the Federal Government, which retains exclusive rights to control the use thereof. Permission to use the term and symbol (see 1.5.18) is granted to NVLAP-accredited laboratories for the limited purpose of announcing their accredited status,

and for use on reports that describe only testing or calibration within the scope of accreditation. NVLAP reserves the right to control the quality of the use of the NVLAP term, logo, and symbol.

1.8.2 NVLAP's policy is to control the use of the term and symbol and to ensure that accredited laboratories express their accredited status in a manner that is clear and accurate, and not misleading. This policy applies to test and calibration reports, letterheads, contracts, business cards, brochures, advertising, websites, and any other use not specified herein.

1.8.3 NVLAP-accredited laboratories are authorized to use the term *NVLAP* and the NVLAP symbol to reference their accredited status, subject to the conditions presented in Annex A. Failure to comply with the conditions may result in suspension or revocation of a laboratory's accreditation.

1.8.4 Use of the term or logo by other persons and organizations shall be authorized in writing by NVLAP on a case-by-case basis.

1.8.5 Use of the term and symbol by a laboratory whose status is suspended, revoked, or voluntarily terminated is specified in 3.10, 3.11, and 3.12.

1.8.6 NVLAP has established procedures for taking suitable action to deal with incorrect references to accreditation status or misleading use of accreditation symbols.

1.9 Mutual recognition

1.9.1 NVLAP maintains signatory member status in several Mutual Recognition Arrangements (MRAs), including the International Laboratory Accreditation Cooperation (ILAC) MRA. MRAs serve to demonstrate the equivalence of the operation of signatory member accreditation bodies. As a consequence, the competence (within the accredited scopes) of laboratories accredited by these bodies is demonstrated and recognized by all signatory accreditation bodies. Through MRAs, NVLAP actively promotes the worldwide acceptance of test reports and calibration certificates from NVLAP-accredited laboratories. Links to the texts of the MRAs are given on the NVLAP website.

1.9.2 As a signatory to the ILAC MRA, NVLAP meets the requirements of ISO/IEC 17011, and specific supplementary MRA requirements. In accordance with the MRA, NVLAP-accredited laboratories meet the requirements of ISO/IEC 17025.

1.9.3 NVLAP may establish and develop special programs in response to requests from government agencies where it has been determined that the subject of accreditation is inherently a government function. Some of these programs may not be covered by or subject to the requirements of any MRA. NVLAP will clearly identify such programs.

1.10 Accreditation of laboratories located outside of the United States

NVLAP has established policies and requirements for accreditation of laboratories located outside the United States (see Annex D). These policies include the NVLAP commitment to abide by its mutual recognition arrangement obligations concerning cross-frontier accreditation activities.

1.11 Complaints

NVLAP employs a formal system to address complaints, which includes procedures for determining the validity of complaints, taking appropriate and effective actions, responding to complainants, and record-keeping. Any person or organization may lodge a complaint regarding the activities of NVLAP or of a

NVLAP-accredited laboratory by sending a description of the complaint and supporting documentation to NVLAP. A complaint concerning a NVLAP-accredited laboratory should first be addressed by the laboratory against which the complaint is lodged.

2 LAP establishment, development and implementation

2.1 Bases for establishment

2.1.1 General

NVLAP establishes LAPs in response to legislative or administrative actions, or to requests from private sector entities or government agencies.

2.1.2 LAPs established through legislative or administrative actions

Upon receipt of a mandate for a LAP based on legislative or administrative action, NVLAP publishes a *Federal Register* notice stating the purpose and general scope of the LAP and identifying government agencies having oversight. The notice provides information to any interested party wishing to receive routine information on the development of the LAP.

2.1.3 LAPs established by request

2.1.3.1 A request to establish a LAP must be made in writing to the Chief of NVLAP. Each request must include:

a) the scope of the LAP in terms of services proposed for inclusion;

b) specific identification of the applicable standards or test methods, including appropriate designations, and the organizations having responsibility for them;

c) a statement of the perceived need for the LAP;

d) an estimate of the anticipated demand for the program, including the number of laboratories that are likely to seek accreditation and the number and nature of the users of such laboratories;

e) a statement of the extent to which the requestor will support necessary developmental aspects of the LAP with funding and personnel.

2.1.3.2 If the requestor is a federal, state, or local government agency, then the request should also include a description of the procedures followed or a citation of the specific authority used to identify a need for the LAP. For state and local government agencies, the request should also include a statement explaining why the LAP should be of national scope.

2.1.3.3 If the requestor is a private sector entity, then the request should also include a description of the process by which the request was developed (e.g., public meetings representing a balance of interests or input from interested parties).

2.1.3.4 NVLAP may request clarification of the information submitted in the request.

2.1.3.5 The Chief of NVLAP analyzes the request and any supporting information received, and after consultation with interested parties through public workshops or other means to ensure open participation, determines if there is need for the requested LAP.

2.1.3.6 The Chief of NVLAP decides whether or not to develop the LAP, taking into consideration the demonstrated need or available resources.

2.1.3.7 The Chief of NVLAP informs the requestor and other interested parties of the LAP decision.

2.2 Development of technical requirements

2.2.1 Technical requirements for accreditation are specific for each LAP. They tailor the general requirements for accreditation to the services covered by the LAP.

2.2.2 NVLAP develops the technical requirements based on relevant and impartial expert advice, ensuring that all interested parties have the opportunity for effective involvement. This advice may be obtained directly through public workshops or other suitable means.

2.2.3 When NVLAP organizes workshops or other means of collecting input, it provides the opportunity for all interested parties to attend and/or respond. One means typically used is announcing such activities in the *Federal Register*. A summary of each workshop is prepared and made available upon request.

2.2.4 When any part of the development of technical requirements is sponsored or undertaken by another organization, NVLAP ensures that the same conditions for balanced representation and participation are fulfilled.

2.2.5 NVLAP communicates and consults with appropriate officials from those federal agencies that may have an interest in and may be affected by established LAPs, facilitating their effective and meaningful cooperation, input, and participation.

2.3 Announcing the establishment of a LAP

When NVLAP has completed the development of the technical requirements, it announces the establishment of the LAP, advising laboratories how to apply for accreditation.

2.4 Adding to or modifying a LAP

2.4.1 A LAP may be added to, modified, or realigned based on either a written request or a need identified by NVLAP. Any person wishing to add or delete specific tests or calibrations, types of tests or calibrations, or standards may submit a request to NVLAP.

2.4.2 NVLAP may choose to make additions or modifications available for accreditation in a LAP when:

a) the additional tests or calibrations, types of tests or calibrations, or standards requested are directly relevant to the LAP;

b) it is feasible and practical to accredit testing or calibration laboratories for the additional tests or calibrations, types of tests or calibrations, or standards;

c) it is likely that laboratories will seek accreditation for the additional tests or calibrations, types of tests or calibrations, or standards.

2.4.3 The process for modifying a LAP depends on the nature of the modification. Significant changes to a LAP may be subject to a process similar to that described in 2.2. Minor changes (e.g., addition of methods for technologies already included in a LAP) may be handled in a less formal manner.

2.4.4 NVLAP gives due notice of any changes to its requirements for accreditation. Laboratories are required to meet any additional requirements within announced time frames.

2.5 Termination of a LAP

2.5.1 The Chief of NVLAP may terminate a LAP when he/she determines that a need no longer exists to accredit laboratories for the services covered under the scope of the LAP.

The Chief of NVLAP may solicit comments on the proposed termination if he/she determines that input from interested parties is necessary.

In the event that the Chief of NVLAP decides to terminate a LAP, a notice will be published in the *Federal Register* setting forth the basis for that determination.

2.5.2 When a LAP is terminated, NVLAP will no longer grant or renew accreditations following the effective date of termination. Accreditations previously granted remain effective until their expiration date unless terminated voluntarily by the laboratory or revoked by NVLAP. Technical expertise is maintained by NVLAP while any accreditation remains effective.

3 Accreditation process

3.1 Application for accreditation

3.1.1 General

A laboratory may apply for accreditation in any of the established LAPs. In order to initiate the accreditation process, the applicant laboratory shall submit a completed application along with required documentation, agree to conditions for accreditation, and pay all required fees.

3.1.2 Required documentation

3.1.2.1 An applicant laboratory shall complete an application for accreditation that includes, but is not limited to, the following information:

a) the legal name and full address of the laboratory;

b) the ownership of the laboratory;

c) the Authorized Representative’s name and contact information;

d) the names, titles and contact information for laboratory staff nominated to serve as Approved Signatories of test or calibration reports that reference NVLAP accreditation;

e) accreditation history, i.e., current accreditations with other accreditation bodies.

3.1.2.2 The laboratory shall submit the following documentation with the application:

a) an organizational chart defining relationships that are relevant to performing testing and calibrations covered in the accreditation request;

b) a general description of the laboratory, including its facilities and scope of operation;

c) the requested scope of accreditation;

d) quality manual and related management system documentation, as well as records of the latest internal audit and management review.

3.1.3 Conditions for accreditation

By signing the application, the laboratory's Authorized Representative attests that the information in the application is correct and commits the laboratory to fulfill the conditions for accreditation listed in Annex C of this handbook, including attestation that the laboratory has an official copy of ISO/IEC 17025.

3.1.4 Fees for accreditation

NVLAP operates on a cost-reimbursable basis from fees paid by participating laboratories. The NVLAP website includes a description of the fee structure and fee refund policy. The fees are reviewed annually and adjusted as necessary.

3.1.5 Review of application

Upon receipt of a laboratory's application for accreditation, NVLAP assigns a NVLAP Lab Code to the applicant laboratory; requests further information, if necessary; and specifies the next step(s) in the accreditation process.

3.2 Management system review

3.2.1 Assignment of assessor(s)

3.2.1.1 NVLAP selects and qualifies assessors on the basis of their education, work experience, technical knowledge, training, assessment experience, and communication and interpersonal skills.

3.2.1.2 NVLAP uses assessors to evaluate all information collected from an applicant laboratory and to conduct the assessment on NVLAP's behalf at the laboratory and any other sites where activities to be covered by the accreditation are performed.

3.2.1.3 Assessors are assigned to conduct an on-site assessment of a particular laboratory on the basis of how well their knowledge and experience match the scope of testing or calibration to be assessed. NVLAP provides the laboratory with a short biographical sketch of each assessor. The laboratory may object to the assignment of any particular assessor if a conflict of interest or prior business relationship exists.

3.2.2 Document and record review

3.2.2.1 The assigned assessor(s) reviews the laboratory's quality manual and related management system documentation submitted with the application to ensure that all aspects of the management system are

addressed and satisfy the requirements in this handbook. The assessor may ask for additional management system documents and/or records in order to facilitate the review.

3.2.2.2 The assessor may identify nonconformities during the document and record review. The assessor informs the Authorized Representative in writing of any nonconformities found. NVLAP may require that the laboratory address the nonconformities before the on-site assessment is scheduled. When the management system documentation requires significant revision, NVLAP may require that the laboratory improve its documentation and submit it for further review prior to proceeding with the accreditation process.

3.2.3 Preparation for on-site assessment

3.2.3.1 The assessor contacts the laboratory to schedule a mutually acceptable date for the on-site assessment. An assessment normally takes one to five days depending on the proposed scope of accreditation. Every effort is made to conduct an assessment with as little disruption as possible to the normal operations of the laboratory.

3.2.3.2 If a laboratory requires that its established assessment date be changed, it shall contact the assessor(s). The laboratory is responsible for any costs associated with the date change.

3.2.3.3 Following initial accreditation, NVLAP will conduct an on-site assessment during the first year of accreditation and every two years thereafter. Delay of assessments beyond these intervals may affect a laboratory's accreditation status.

3.2.3.4 An on-site assessment is conducted at all laboratory premises where tests or calibrations are performed. When tests or calibrations are performed at locations other than laboratory premises, NVLAP will determine the process for assessing these activities. The process may include observing tests or calibrations performed at these locations.

3.2.3.5 NVLAP may elect to conduct a preassessment of a laboratory if it determines that such a visit would be useful to evaluate the laboratory's preparedness for the assessment stage of the accreditation process.

3.3 On-site assessment

3.3.1 Conduct of on-site assessment

3.3.1.1 Assessors use checklists provided by NVLAP so that each laboratory receives an assessment comparable to that received by others. Checklists are normative documents that include the requirements outlined in NIST Handbook 150 and the NIST Handbook 150-xx series.

3.3.1.2 At the beginning of the assessment, the assessor(s) conducts an opening meeting with management and laboratory personnel to explain the purpose of the on-site assessment, clearly define the accreditation criteria, and confirm the assessment schedule and the requested scope of accreditation.

3.3.1.3 During the assessment, the assessor(s) gathers objective evidence to verify the laboratory's competence for the requested scope of accreditation. These activities may include examining the management system, reviewing quality and technical records, examining equipment and facilities, interviewing staff, and observing demonstrations of testing or calibrations.

3.3.1.4 In order to conduct an appropriate assessment of competence, the assessor requires access to laboratory records for all staff members who routinely perform or affect the quality of the testing or calibration for which accreditation is sought. This includes resumes, job descriptions of key personnel, training, and competency evaluations. The assessor need not be given information that violates individual privacy, such as salary, medical information, or performance reviews outside the scope of the accreditation program.

3.3.1.5 At the conclusion of the assessment, the assessor conducts a closing meeting to discuss observations and any nonconformities with the Authorized Representative and other responsible laboratory staff. During the meeting, the laboratory has the opportunity to ask questions about the findings, including nonconformities, if any, and their basis.

3.3.2 Analysis and notification of findings

The assessor informs the laboratory of nonconformities during the on-site assessment and documents the nonconformities in the on-site assessment report.

3.3.3 On-site assessment report

3.3.3.1 At the closing meeting, the assessor submits a written report on the conformance of the laboratory with the accreditation requirements. The report includes as a minimum:

a) date(s) of assessment;

b) the names of the assessor(s) responsible for the report;

c) the names and addresses of all the laboratory locations assessed;

d) the assessed scope of accreditation or reference thereto;

e) comments and/or nonconformities cited by the assessor(s) on the compliance of the laboratory with the accreditation requirements;

f) a copy of completed checklists.

3.3.3.2 The Authorized Representative signs the report to acknowledge that the assessor has discussed its content and agrees to respond to NVLAP regarding resolution of nonconformities within 30 days (see 3.3.4).

3.3.3.3 The assessor forwards the original report to NVLAP and leaves a copy with the laboratory.

3.3.3.4 NVLAP is responsible for the content of the on-site assessment report, including the stating of nonconformities.

3.3.4 Resolution of nonconformities

3.3.4.1 A laboratory shall respond in writing to NVLAP within 30 days of the date of the on-site assessment report, addressing all documented nonconformities. The response shall be signed by the Authorized Representative and shall include documentation that the specified nonconformities have been corrected.

3.3.4.2 All nonconformities shall be satisfactorily resolved before initial accreditation may be granted. If resolution is expected to take longer than 30 days, the laboratory may submit a corrective action plan in its initial response, which typically includes a list of actions, target completion dates, and names of persons responsible for discharging those actions.

The laboratory shall supply evidence that clearly demonstrates that the actions taken have fully resolved the nonconformities. If the laboratory's responses are found to be insufficient, NVLAP may request further information.

3.3.4.3 The laboratory may ask for clarification of a nonconformity from either the assessor during the closing meeting or NVLAP at any time. A laboratory may also challenge the validity of a nonconformity by writing to NVLAP.

3.3.4.4 If substantial nonconformities are cited, NVLAP may require an additional on-site assessment, at additional cost to the laboratory, prior to granting accreditation. All nonconformities and resolutions will be subject to thorough review and evaluation prior to the accreditation decision (see 3.5).

3.4 Proficiency testing

3.4.1 General

3.4.1.1 Proficiency testing, along with document review and on-site assessment, is an integral part of the NVLAP accreditation process. The performance of tests or calibrations and reporting of results from proficiency testing assists NVLAP with determining a laboratory's competence and the effectiveness of its management system. Information obtained from proficiency testing helps to identify technical problems in a laboratory and assists in maintaining the quality of laboratory performance.

3.4.1.2 NVLAP uses proficiency testing programs that are consistent with the requirements contained in ISO/IEC 17043, *Conformity assessment – General requirements for proficiency testing*, where applicable. Proficiency testing may be coordinated by NVLAP itself or by an external provider of proficiency testing services.

3.4.1.3 Where applicable, requirements regarding the minimum level and frequency of participation in proficiency testing by accredited laboratories and other information about proficiency testing programs are provided in NVLAP's program-specific documentation.

3.4.2 Types of proficiency testing

3.4.2.1 Proficiency testing requirements are associated with most fields of accreditation. Proficiency testing techniques vary depending on the nature of the test item, the method in use, and the number of laboratories participating. For examples of types of proficiency testing, see Note 1 of 1.5.21.

3.4.2.2 Proficiency testing using interlaboratory comparisons may utilize randomly selected specimens from a batch of uniform material, selected specimens with known properties and results, artifacts with similar properties that have not been characterized, and one-of-a-kind artifacts.

3.4.2.3 Proficiency testing for calibration laboratories may involve comparison of the results of measurements made by the laboratory on selected instruments or artifacts with calibration results obtained independently by NVLAP.

3.4.3 Analysis and reporting

NVLAP reviews proficiency testing data as part of the accreditation assessment and decision-making process. For proficiency testing programs organized by NVLAP, each participant's own results are reported only to them. Summary results are available upon request to interested parties (e.g., professional societies and standards-writing bodies); however, the identity and performance of individual laboratories are kept confidential.

3.4.4 Proficiency testing nonconformities

3.4.4.1 Unsatisfactory participation in any NVLAP proficiency testing program is a nonconformity. Proficiency testing nonconformities are defined as, but not limited to, one or more of the following:

a) failure to meet specified proficiency testing performance requirements prescribed by NVLAP;

b) failure to participate in a regularly scheduled "round" of proficiency testing for which the laboratory has received instructions and/or materials;

c) failure to produce acceptable test or calibration results when using materials or artifacts whose properties are well-characterized and known to NVLAP.

3.4.4.2 NVLAP notifies the laboratory of proficiency testing nonconformities and actions to be taken to resolve the nonconformities. Failure to resolve proficiency testing nonconformities will result in denial or suspension of accreditation.

3.5 Accreditation decision

3.5.1 The Chief of NVLAP is responsible for all NVLAP accreditation actions, including granting, renewing, suspending, and revoking any NVLAP accreditation.

3.5.2 NVLAP evaluates the information gathered during the accreditation process, including:

a) information provided on the application;

b) results of management system documentation review;

c) on-site assessment reports;

d) actions taken by the laboratory to correct nonconformities;

e) results of proficiency testing, if required.

3.5.3 Based on this evaluation, NVLAP makes the decision whether or not to accredit the laboratory. If the evaluation reveals nonconformities beyond those identified in the assessment process, NVLAP informs the laboratory in writing of the nonconformities. The laboratory shall respond as specified in 3.3.4. All nonconformities must be resolved to NVLAP's satisfaction before accreditation can be granted.

NOTE In the event that NVLAP determines accreditation cannot be granted, the laboratory has the right to appeal that decision (see 3.13).

3.6 Granting accreditation

3.6.1 NVLAP grants initial accreditation when a laboratory has met all NVLAP criteria for accreditation. One of four accreditation renewal dates (January 1, April 1, July 1, or October 1) is assigned to the laboratory and is usually retained as long as the laboratory remains in the program. NVLAP accreditation is valid from the date of granting accreditation to the assigned renewal date. If accreditation is not renewed by the laboratory prior to the renewal date, the accreditation will expire.

3.6.2 When accreditation is granted, NVLAP provides a Certificate of Accreditation and a Scope of Accreditation to the laboratory.

3.6.3 The accreditation documents include the following information:

a) the name and address of the laboratory that has been accredited;

b) the laboratory's Authorized Representative;

c) the effective and the expiration dates of the accreditation;

d) the NVLAP Lab Code.

3.6.4 The scope of accreditation shall also identify:

a) the tests or calibrations, or types of tests or calibrations, for which accreditation has been granted,

b) for calibrations, the calibration and measurement capability (CMC) expressed as:

- measurand or reference material;
- calibration/measurement method/procedure and/or type of instrument/material to be calibrated/measured;
- measurement range and additional parameters where applicable, e.g., frequency of applied voltage;
- uncertainty of measurement.

c) for tests, the materials or products tested, the methods used, and the tests performed.

NOTE: Refer to ILAC P14, Clause 5 for additional information on calibration scopes of accreditation.

3.7 Renewal of accreditation

3.7.1 Each accredited laboratory receives a renewal notification before the expiration date of its accreditation to allow sufficient time to complete the renewal process.

3.7.2 Fees for renewal are charged according to services required as listed on the NVLAP website.

3.7.3 Both the required information and fees shall be received by NVLAP prior to expiration of the laboratory's current accreditation to avoid a lapse in accreditation.

3.7.4 On-site assessments of currently accredited laboratories are performed in accordance with the procedures in 3.2 and 3.3. If nonconformities are found during the assessment of an accredited laboratory, the laboratory must submit a satisfactory response concerning resolution of nonconformities within 30 days of notification.

3.7.5 Should resolution take longer than 30 days, the laboratory's accreditation may be subject to adverse action. In those cases where nonconformities do not directly affect the results of tests or calibrations, NVLAP, at its discretion, may accept a plan of corrective action as satisfactory resolution. When this occurs, laboratories are expected to submit sufficient objective evidence (see 1.5.20) to demonstrate that the nonconformities have been resolved according to the plan.

3.7.6 Undue delay in the resolution of nonconformities may necessitate another on-site assessment at additional cost to the laboratory.

3.8 Monitoring visits

3.8.1 In addition to regularly scheduled assessments, NVLAP may conduct monitoring visits at any time during the accreditation period. They may occur for cause or on a random selection basis. While most monitoring visits will be scheduled in advance with the laboratory, NVLAP may conduct unannounced monitoring visits.

3.8.2 The scope of a monitoring visit may range from checking a few designated items to a complete assessment; for example, the assessors may review nonconformity resolutions; verify reported changes in the laboratory's personnel, facilities, or operations; administer proficiency testing; or investigate complaints, when appropriate.

3.9 Changes to scope of accreditation

A laboratory may request in writing changes to its scope of accreditation. If the laboratory requests additions to its scope, it shall meet all NVLAP requirements for the additional tests or calibrations, types of tests or calibrations, or standards. NVLAP determines the need for an additional on-site assessment and/or proficiency testing on a case-by-case basis.

A laboratory may also request deletions from its scope of accreditation. The deletions may be temporary (see 3.10) or permanent.

3.10 Suspension of accreditation

3.10.1 NVLAP may suspend an accredited laboratory's accreditation if there is evidence that the laboratory has persistently failed to comply with the criteria for accreditation; e.g., evidence obtained during the assessment process, or the laboratory's notification to NVLAP of a major change [see Annex C, item h)]. Suspension can be for all or part of a laboratory's accreditation. Depending on the nature of the issues involved, NVLAP may also propose to revoke accreditation (see 3.11).

3.10.2 If a laboratory's accreditation is suspended, NVLAP notifies the laboratory of that action, stating the reasons for and conditions of the suspension and specifying the action(s) the laboratory must take to have its accreditation reinstated. A reassessment of the laboratory may also be required for reinstatement.

3.10.3 A suspended laboratory shall refrain from using the NVLAP symbol in the area(s) affected by the suspension. When issues that led to the suspension are resolved, NVLAP will reinstate the laboratory's

accreditation and authorize the laboratory to resume testing or calibration activities in the previously suspended area(s) as an accredited laboratory**.**

3.11 Revocation of accreditation

3.11.1 If NVLAP proposes to revoke the accreditation of a laboratory, the NVLAP Chief informs the laboratory of the reasons for the proposed revocation and the procedure for appealing such a decision. Revocation can be for all or part of a laboratory's scope of accreditation. NVLAP may give the laboratory the option of voluntarily terminating the accreditation (see 3.12).

3.11.2 The laboratory has 30 days from the date of receipt of the proposed revocation letter to appeal the decision (see 3.13). The proposed revocation becomes final through the issuance of a written decision to the laboratory in the event that the laboratory does not appeal the proposed denial or revocation within the 30-day period.

3.11.3 A laboratory whose accreditation has been revoked shall cease use of the NVLAP symbol on any of its test or calibration reports, correspondence, or advertising related to the area(s) affected by the revocation. If the revocation affects only some, but not all of the items listed on a laboratory's Scope of Accreditation, NVLAP will issue a revised scope that excludes the revoked area(s).

3.11.4 A laboratory whose accreditation has been revoked, may reapply for accreditation and complete the assessment and evaluation process (see 3.1 to 3.6).

3.12 Voluntary termination of accreditation

3.12.1 A laboratory may request to terminate its accreditation by advising NVLAP in writing.

3.12.2 Upon receipt of a request for termination, NVLAP will terminate the laboratory's accreditation, notify the laboratory that its accreditation has been terminated, and instruct the laboratory to remove the NVLAP symbol from all test and calibration reports, correspondence, and advertising.

3.12.3 A laboratory whose accreditation has been voluntarily terminated may reapply for accreditation and complete the assessment and evaluation process (see 3.1 to 3.6).

3.13 Appeals

3.13.1 A laboratory has the right to appeal any adverse decision made by NVLAP related to its accreditation status. Such decisions include refusal to accept an application; refusal to proceed with an assessment; corrective action requests; changes in scope of accreditation; decision to deny, suspend, or revoke accreditation; and any other action that impedes the attainment of accreditation. The laboratory submits its appeal in writing to NVLAP.

3.13.2 Appeals are handled by the next higher level in the organization. Appeals of decisions made by NVLAP Program Managers (e.g., acceptance of an application, corrective action requests) are handled by the NVLAP Chief. Appeals of decisions made by the NVLAP Chief (e.g., final accreditation, revocation of accreditation) are handled by the Director of NIST. In some cases, a qualified technical expert(s), who is independent of the subject of appeal, may be called to investigate an appeal.

3.13.3 The person(s) assigned to investigate the appeal decides on the validity of the appeal and, if appropriate, renders a recommendation. NVLAP advises the appellant of the outcome of these

deliberations and any recourse for further appeal. If the laboratory appeals a decision to the Director of NIST, the adverse decision will be stayed pending the outcome of the appeal.

4 Criteria for accreditation

4.1 General

4.1.1 The NVLAP criteria for accreditation are made up of several documents:

a) the NVLAP conditions for accreditation (see Annex C);

b) the conformity assessment standard, ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*, which sets out the general requirements for the accreditation of testing and calibration laboratories;

c) the NIST Handbook 150 series of handbooks, which provide additional requirements, guidance, and interpretive information applicable to specific NVLAP laboratory accreditation programs (LAPs).

4.1.2 The NVLAP conditions for accreditation and the NIST Handbook 150 series of handbooks are available for download from the NVLAP website http://www.nist.gov/nvlap. The ISO/IEC 17025 standard is not supplied by NVLAP. Each applicant and accredited laboratory shall have an official copy of this standard from a legitimate source.

4.1.3 In between the formal revisions of NIST Handbook 150, NVLAP may publish NVLAP Policy Guides to augment NIST Handbook 150 and give notice of any changes on the requirements for accreditation. A Policy Guide may set forth new, or clarify existing, general policies, procedures, and requirements. The content of a NVLAP Policy Guide supersedes any previous criteria where indicated.

4.2 NVLAP program-specific requirements

4.2.1 Program-specific handbooks contain the technical requirements, guidance, and interpretations that are specific to each field of accreditation for which NVLAP offers accreditation.

4.2.2 NVLAP may publish NVLAP Lab Bulletins, as needed, to provide additional information relating to a specific LAP, including program additions and changes, or to clarify program-specific requirements. The additions or changes to a program that are published in a NVLAP Lab Bulletin supersede the requirements of the currently published handbook until such time as the additions or changes are published in a revision of the handbook.

Annex A
(normative)

Referencing NVLAP accreditation

A.1 General

The term *NVLAP* and the NVLAP logo are registered marks of the Federal Government, which retains exclusive rights to control the use thereof. Permission to use the term and symbol (see 1.5.19) is granted to NVLAP-accredited laboratories for the limited purpose of announcing their accredited status, and for use on reports that describe only testing or calibration within the scope of accreditation. NVLAP reserves the right to control the quality of the use of the NVLAP term, logo, and symbol.

The NVLAP symbol clearly indicates the activity to which the accreditation is related through incorporation of the unique NVLAP Lab Code and the word "testing" or "calibration."

The procedures for the use of the Combined ILAC MRA Mark by accredited laboratories within the scope of the ILAC MRA are set out in Annex E.

A.2 Conditions for referencing NVLAP accreditation

In order to become and remain accredited, laboratories shall comply with the following conditions pertaining to the use of the term *NVLAP*, the NVLAP logo, and NVLAP symbol. Failure to comply with these conditions may result in suspension or revocation of a laboratory's accreditation.

a) An accredited laboratory shall have a policy and procedure for controlling the use of the term *NVLAP* and the NVLAP symbol. The procedure shall be unique and include actions to be taken specific to the laboratory.

b) An applicant laboratory that has not yet achieved accreditation may make reference to its applicant status. If the NVLAP Lab Code is used, it shall be accompanied by a statement accurately reflecting the laboratory's status. An applicant laboratory shall not use the NVLAP logo or symbol.

c) The term and/or symbol shall not be used in a manner that brings NVLAP into disrepute or misrepresents a laboratory's scope of accreditation or accredited status.

d) When the term *NVLAP* is used to reference a laboratory's accredited status, it shall be accompanied by the NVLAP Lab Code.

e) The use of the NVLAP term and/or symbol on a laboratory's test or calibration reports shall be limited to the specific location(s), site(s), or field activity(ies) as identified on the scope of the accreditation.

f) A test or calibration report bearing the term and/or symbol shall include a statement that the report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

g) A laboratory shall not use the terms *certified* or *registered* when referencing its NVLAP accreditation or its conformance to ISO/IEC 17025. The correct term is *accredited*.

h) When an accredited laboratory uses the term and/or symbol in a contract or proposal, the laboratory shall reference its current accreditation status and provide a copy of, or link to its scope of accreditation.

A.3 Reproduction of NVLAP symbol

A.3.1 The following rules shall apply when a laboratory uses the NVLAP symbol to reference its accredited status.

a) The type of activity (testing or calibration) and the NVLAP Lab Code shall appear below and in close proximity to the logo (Fig. 1). The width of the caption shall not exceed the width of the logo itself.

b) The symbol shall stand by itself and shall not be combined with any other logo, symbol, or graphic. As an exception to this rule, the NVLAP symbol may be used in combination with the ILAC MRA Mark by accredited laboratories under the provisions set forth in Annex E.

c) The aspect ratio (width to height) of the NVLAP logo shall be 2.25 to 1.

d) The symbol shall be of a size that allows the caption (type of activity and NVLAP Lab Code) to be easily read.

e) The symbol may be filled or unfilled. In the case of a filled symbol, the same color shall be used for the outline and the fill.

NOTE Electronic copies of the NVLAP logo are available from NVLAP upon request.

A.4 Approved signatories

The name of at least one Approved Signatory shall appear on a test or calibration report that displays the NVLAP symbol or references NVLAP accreditation. A computer-generated report may have the Approved Signatory's name printed along with the test or calibration results, as long as there is evidence that there is a system in place to ensure that the report cannot be generated without the review and consent of the Approved Signatory. There may be legal or contractual requirements for original signatures to appear on the report.

NOTE: NVLAP defines the person(s) who authorizes the test report or calibration certificate as the Approved Signatory (see 1.5.2).

A.5 Reporting results not covered by the scope of accreditation

A.5.1 The laboratory may use the term and/or symbol on test or calibration reports when some or all of the data are from tests or calibrations performed by the laboratory under its scope of accreditation. The laboratory shall not use the term and/or symbol on a report that contains no accredited data.

A.5.2 A test or calibration report that contains both data covered by the accreditation and data not covered by the accreditation shall clearly identify the data that are not covered by the accreditation. The report must prominently display the following statement at the beginning of the report: "This report contains data that are not covered by the NVLAP accreditation."

A.5.3 If a customer requests an accredited laboratory to generate a test or calibration report based on data obtained by another laboratory, the accredited laboratory shall ensure that it is not misrepresenting the data as being covered under its accreditation. The test or calibration report shall meet the requirements of ISO/IEC 17025:2005, 5.10.2 b), as well as the conditions for referencing NVLAP accreditation found in this annex.

A.5.4 The laboratory shall not: issue a test or calibration report that:

a) contains data not generated specifically for the product identified in that report without an indication of the original source of the data; or

b) uses the NVLAP term and/or symbol for data from tests not performed by the laboratory.

When NVLAP obtains any such reports, the laboratory shall be required to apply its procedures for control of nonconforming work and take corrective action. Depending on the circumstances, a laboratory's accreditation status may be affected.

A.5.5 The NVLAP symbol shall not be included on correspondence that covers a test or calibration report in which none of the results are within the scope of accreditation, or that covers work proposals or quotes if none of the work is within the scope of accreditation.

A.6 Calibration labels on equipment

A.6.1 A laboratory may attach a calibration label containing the NVLAP symbol to an item of equipment that it has calibrated provided that the equipment has been calibrated using calibration methods covered by the laboratory's scope of accreditation.

A.6.2 Calibration labels containing the NVLAP symbol shall not give the impression that NVLAP has approved or calibrated the equipment.

A.6.3 In addition, the calibration label usually includes the following information:

a) the name of the accredited calibration laboratory;

b) equipment identification;

c) date of calibration;

d) cross reference to the calibration certificate issued in respect of the calibration.

A.7 Subcontracted tests and calibrations

A.7.1 When the term and/or symbol are used on test or calibration reports that also include work done by subcontracted laboratories, such use shall be limited to reports in which some or all of the data are from tests or calibrations performed by the contracted laboratory under its scope of accreditation.

A.7.2 A test or calibration report that contains both data covered by the accreditation of the contracted laboratory and data provided by a subcontractor shall clearly identify the data that were provided by the subcontracted laboratory. The report must prominently display the following statement at the beginning of the report: "This report contains data that were produced under subcontract by Laboratory X." If the subcontracted laboratory is accredited by NVLAP, then its Lab Code should also be stated. If the

subcontracted laboratory is accredited by a body other than NVLAP, then the name of the accreditation body and the laboratory's number or other unique identifier shall also be stated. If the subcontracted laboratory is not accredited, then this must be stated.

A.8 Opinions and interpretations

A.8.1 When opinions and interpretations are covered by the NVLAP scope of accreditation, they may be included on a report endorsed with the NVLAP symbol only when the requirements of ISO/IEC 17025:2005, 5.10.5 are met; i.e., opinions and interpretations shall be clearly marked.

A.8.2 Where such statements of opinion and interpretation are outside the scope of accreditation, the report shall display the following disclaimer close to the NVLAP symbol or to the expression of opinion: "The opinions/interpretations expressed in this report are outside the scope of this laboratory's accreditation."

A.9 Advertising and promotional materials

A.9.1 An accredited laboratory may use the NVLAP symbol in advertising or promotional materials concerning the laboratory's accreditation, provided that the laboratory fully conforms to the requirements for claiming accreditation status and ensures there is no misrepresentation of the status and the scope of accreditation.

A.9.2 Permitted uses of the NVLAP symbol in advertising and promotional materials include:

a) letterheads;

b) brochures and publications;

c) business cards (as long as the symbol is not used in a way that could imply personnel certification);

d) websites;

e) other communication media.

A.9.3 When a laboratory uses the NVLAP symbol in advertising and promotional materials, such as a webpage banner or product catalog, such use shall not imply NVLAP endorsement or approval of the advertised products or items. Further, the accredited laboratory shall ensure that these requirements for referencing NVLAP accreditation are incorporated into contracts to perform work for distributors or resellers of a product that has been tested or calibrated by the accredited laboratory; i.e., a product distributor or reseller shall not reference NVLAP accreditation in a manner that implies that the distributor or reseller is accredited or can produce accredited test or calibration results. The accredited laboratory shall also ensure that each distributor or reseller includes a disclaimer when referencing the accredited laboratory's accreditation stating the distributor or reseller is not accredited by NVLAP.

A.9.4 When using the NVLAP symbol for advertising and promotional materials, an organization with multiple laboratory accreditations may list all of its NVLAP Lab Codes beneath the logo to form the symbol (see example in Fig. 2) or use another means of conveying the same information that is approved by NVLAP. However, this form of the symbol shall not be used on laboratory reports and certificates. Organizations that have both accredited and unaccredited sites shall ensure that when the NVLAP symbol is used in corporate advertising and promotional materials, such use does not imply that accreditation is

held for sites that are not accredited and does not misrepresent the scope of accreditation at accredited sites.

NOTE: Other variations for the symbol for use in advertising by laboratories with multiple accreditations may be approved on a case-by-case basis by NVLAP.

A.10 Misuse of NVLAP term, logo, or symbol

A.10.1 NVLAP investigates any evidence of misuse of the NVLAP symbol or claim of accreditation status. The actions taken by NVLAP to address violations of its policy and procedures for referencing NVLAP accreditation may include requests for corrective action, suspension of accreditation, and/or legal action, as necessary.

A.10.2 NVLAP has procedures to ensure that an accredited laboratory discontinues the use of the NVLAP symbol or any reference to NVLAP accreditation status for testing or calibration immediately on suspension, revocation, or voluntary termination of the accreditation (see 3.10, 3.11, and 3.12). This includes any reference to NVLAP accreditation in test and calibration reports, correspondence, promotional materials, and advertising, including laboratory websites.

A.11 Examples of the NVLAP symbol

Figure 1. NVLAP symbol.

Figure 2. Example of NVLAP symbol for a laboratory with multiple accreditations (used for advertising and promotional purposes only)

Annex B

(normative)

Implementation of traceability policy in accredited laboratories

B.1 Policy

It is a fundamental requirement that the results of all accredited calibrations and the results of all calibrations required to support accredited tests shall be traceable to the SI (the International System of Units) through standards maintained by NIST or other internationally recognized national metrology institutes (NMIs). ISO/IEC 17025:2005, 5.6 sets out the specific requirements for traceability to be met by testing and calibration laboratories. This annex describes how these requirements shall be met and how traceability of measurement is assured by an accredited laboratory. The structure of this annex is consistent with ILAC-P10:01/2013, which describes the ILAC policy with regard to the metrological traceability requirements from ISO/IEC 17025.

Internationally recognized NMIs are those that are signatory to the Comité International des Poids et Mesures (CIPM) Mutual Recognition Arrangement (MRA) titled "Mutual recognition of national measurement standards and of calibration and measurement certificates issued by national metrology institutes" and that have the necessary calibration services listed in Appendix C of the MRA, *Calibration and Measurement Capabilities – CMCs*, located in the Key Comparison Database (KCDB). For more details on the CIPM MRA and the CMC database, please see http://www.bipm.org/en/cipm-mra/ or visit the NVLAP website.

B.2 General procedures

B.2.1 Laboratories shall be able to demonstrate proper use of traceable standards and test and measurement equipment by competent laboratory personnel in a suitable environment in performing the tests for which accreditation is desired or held.

B.2.2 Calibration certificates received by NVLAP-accredited testing and calibration laboratories with new or recalibrated equipment shall meet the requirements of ISO/IEC 17025. The certificates shall include the uncertainty of measurement and/or a statement of compliance with an identified metrological specification or clauses thereof. For additional information, see ILAC-P14, *ILAC Policy ILAC Policy for Uncertainty in Calibration.*

B.2.3 For the purpose of assuring traceability, an accredited laboratory may calibrate its own equipment if the appropriate requirements of NIST Handbook 150 have been met. Thus, testing laboratories that perform calibrations only for themselves do not need to be accredited as calibration laboratories, and calibration laboratories that perform specific calibrations only for themselves to support their accredited services do not need to be accredited for those specific calibrations. Results of internal calibrations shall meet the requirements of B.2.2.

B.3 Demonstration of traceability

B.3.1 General

Traceability to the SI shall be demonstrated by one of the following paths:

a) use of an NMI whose service is covered by the CIPM MRA, or

b) use of an accredited calibration laboratory, or

c) use of an NMI that does not have a CMC in the KCDB, or a calibration laboratory whose service is not covered by the ILAC MRA.

The requirements for each of these paths of traceability are described in B.3.2 through B.3.4.

B.3.2 Use of an NMI whose service is covered by the CIPM MRA

A NVLAP-accredited laboratory may submit appropriate physical standards and test and measurement equipment directly to NIST or, when appropriate, to another CIPM MRA signatory-NMI that has a CMC in the KCDB for the measurement in question. An accredited laboratory may obtain certified reference materials from NIST (called "Standard Reference Materials" under copyright) or from another national metrology institute.

B.3.3 Use of an accredited calibration laboratory

A NVLAP-accredited laboratory that does not demonstrate traceability as described in B.3.2 shall use accredited calibration laboratory services, when available. Accredited calibration laboratories are those accredited by NVLAP or by any accreditation body that is a signatory to the International Laboratory Accreditation Cooperation Mutual Recognition Arrangement (ILAC MRA). A listing of NVLAP-accredited calibration laboratories is available through the NVLAP online directory of accredited laboratories at < https://www-s.nist.gov/niws/index.cfm?event=directory.search>. A listing of ILAC MRA signatories is available at http://www.ilac.org/.

B.3.4 Use of an NMI whose service is not covered by the CIPM MRA or a calibration laboratory whose service is not covered by the ILAC MRA

B.3.4.1 General

If an appropriate accredited calibration service provider is not available, a NVLAP-accredited laboratory may submit physical standards or test and measurement equipment to a provider whose services do not meet the requirements of B.3.2 or B.3.3. However, the services shall meet the relevant criteria for metrological traceability in ISO/IEC 17025 (see B.3.4.2 and B.3.4.3).

B.3.4.2 NMI that does not meet the requirements in B.3.2.

There are a number of factors that shall be considered in the situation where an NMI's service is suitable for the intended need, but is not covered by the CIPA MRA. Those factors may include, but are not limited to:

- membership or recognition status in CIPM;
- CMCs for same parameter in a different range;
- unpublished results of key comparisons;
- regional or bilateral intercomparisons;

- results of special tests.

In such cases, the NVLAP-accredited laboratory shall consult with NVLAP to determine the appropriate means of demonstrating traceability.

B.3.4.3 Calibration service provider that does not meet the requirements in B.3.3

If a NVLAP-accredited laboratory uses a calibration service provider that is not accredited by an ILAC MRA signatory, the laboratory shall:

a) document the lack of an appropriately accredited calibration service provider;

b) audit the claim of traceability of the provider of the calibration service and document the following areas related to the calibration and claim of traceability of its standards and test and measurement equipment:

   1) information regarding assessment of the quality system used by the calibration service provider;

   2) the calibration procedure(s) used by the calibration service provider;

   3) the physical standards or other test and measurement equipment used by the calibration service provider (including evidence of traceability to standards maintained by NIST or an appropriate national metrology institute and copies of relevant calibration certificates);

   4) information regarding the calibration intervals of relevant standards or other test and measurement equipment;

   5) the environmental conditions of the laboratory;

   6) the method(s) by which uncertainties are determined (e.g., Guide to the Expression of Uncertainty in Measurement (GUM)); and

   7) the relative uncertainties achieved at all steps of the process;

c) pursue the traceability chain until traceability to appropriate stated references is completely validated, when a calibration service provider submits physical standards and/or test and measurement equipment used in the calibration to another laboratory(s) not accredited by NVLAP;

d) enter the audit documentation, including all findings of nonconformance and resolutions of those findings, into the laboratory's quality management record-keeping system.

NOTE An on-site visit to the provider of the calibration service is encouraged, but is not required as long as the information listed above is obtained and otherwise verified. Self-declaration of compliance to ISO/IEC 17025 or other relevant standards by a calibration service provider is not acceptable evidence of verification of traceability. Citation of a NIST Test Number by the calibration service provider likewise is not acceptable evidence of verification of traceability.

B.3.5 Traceability to the SI not available

If traceability to the SI is not available, a NVLAP-accredited laboratory may demonstrate comparison to a widely used standard that is clearly specified and documented as mutually agreeable to all parties concerned.

Annex C
(normative)

Conditions for accreditation

To become accredited and maintain accreditation, a laboratory shall agree in writing to comply with the following NVLAP conditions for accreditation:

a) comply at all times with the NVLAP requirements for accreditation as set forth in NIST Handbook 150 and relevant technical documents, including any changes to those requirements;

b) fulfill the accreditation procedure, especially to receive the assessment team and allow access to information, documents, and records;

c) when the laboratory conducts activities at clients' sites, have arrangements to provide access to the assessment team;

d) pay the fees charged to the applicant laboratory as determined by NVLAP, and maintain relevant financial agreements;

e) participate in proficiency testing as required;

f) follow NVLAP conditions for referencing accreditation status (see Annex A and Annex E);

g) resolve all nonconformities;

h) report to NVLAP within 30 days any significant changes relevant to its accreditation, in any aspect of its status or operation relating to:

   — legal, commercial, organizational, or ownership status,

   — organization, top management, or key personnel, including Authorized Representative and Approved Signatories,

   — main policies,

   — resources and location, including equipment, facilities, and working environment, where significant,

   — scope of accreditation, or

   — other matters that may affect the laboratory's ability to comply with the requirements of NIST Handbook 150 and/or relevant technical documents;

i) return to NVLAP the Certificate of Accreditation and the Scope of Accreditation should it be requested to do so by NVLAP.

In addition to the confidentiality provisions of NIST Handbook 150 paragraph 1.7, NVLAP (administered by NIST) and the laboratory seeking accreditation acknowledge and agree that the accreditation

assessments and proficiency testing work done by NIST/NVLAP is done in accordance with the authority granted to NIST by Title 15 United States Code Section 3710a. The Parties further agree that to the extent permitted by law, NIST will protect information obtained during application, on-site assessment, proficiency testing, evaluation, and accreditation from disclosure pursuant to Title 15 USC 3710a(c)(7)(A) and (7)(B) for a period of five (5) years after it is obtained.

For the first five years that laboratory information is held by NVLAP, both confidentiality provisions will be in force — NIST Handbook 150 and 15USC3710a. Information in NVLAP's possession for more than five years will continue to be held in confidence under the provision of NIST Handbook 150.

Annex D
(normative)

Accreditation of laboratories located outside of the United States

D.1 Additional requirements for laboratories located outside of the United States

D.1.1 Laboratories shall provide all documents to NVLAP in English including, but not limited to, applications, quality manuals, internal audit and management review records, nonconformity responses, and records serving as objective evidence of compliance with NVLAP requirements. During an on-site assessment, if the laboratory personnel do not speak English, the laboratory shall provide an interpreter(s), subject to NVLAP approval. The interpreter(s) will assist the assessor(s) with conversing directly with laboratory management and technical staff and with reviewing laboratory documentation.

D.1.2 If the fees listed on the NVLAP fee schedule do not cover the cost of an on-site assessment, the laboratory will be responsible for all additional costs; e.g., travel by NVLAP assessors, shipment of proficiency testing materials to the laboratory, and additional administrative expenses. To ensure that the initial or renewal application is processed without delay, payment (in U.S. currency) of the appropriate fees should accompany the application. When all the additional costs associated with the application have been identified, an invoice for any additional fee amount owed will be sent to the laboratory.

D.1.3 Pursuant to U.S. Department of Commerce export regulations and/or U.S. Department of State International Traffic in Arms Regulations, certain technologies, equipment, data and software may not be exported from the United States to certain foreign destinations or may not be shared with certain foreign nationals within the United States without first obtaining an export license or official approval. If a laboratory uses or possesses regulated technologies, NVLAP requires that the laboratory possess, and show upon request, the appropriate license or official U.S. Government approval. For export and license information for the Department of Commerce regulations, see the Bureau of Industry and Security website, http://www.bis.doc.gov/PoliciesAndRegulations/index.htm. For export and license information regarding the State Department International Traffic in Arms Regulations, see the Directorate of Defense Trade Controls website, http://www.pmddtc.state.gov/regulations_laws/itar.html.

D.2 Cross-frontier policy

D.2.1 To meet its obligations as a signatory to the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (Arrangement), NVLAP has a cross-frontier accreditation policy in harmony with ILAC-G21, *Cross Frontier Accreditation—Principles for Avoiding Duplication*. When a laboratory located outside of the United States applies for NVLAP accreditation, it is NVLAP policy to communicate with and cooperate with, whenever possible, ILAC Arrangement signatory laboratory accreditation bodies in the economy of the applicant laboratory.

The purpose of the cross-frontier policy is to ensure that test reports and calibration certificates issued by accredited laboratories will be accepted worldwide and to increase confidence among laboratory accreditation bodies worldwide while reducing the burden on laboratories caused by duplicate accreditations.

D.2.2 NVLAP will discuss this policy with applicant laboratories before NVLAP contacts any laboratory accreditation bodies in the laboratory's own economy.

Annex E
(normative)

Use of the Accredited Laboratory Combined ILAC MRA Mark

E.1 General

This annex sets forth the policy and procedure for the use of the Accredited Laboratory Combined ILAC MRA Mark by NVLAP-accredited laboratories. The Accredited Laboratory Combined ILAC MRA Mark is the ILAC MRA Mark in combination with the NVLAP symbol. NVLAP may grant permission to its accredited laboratories to use the Accredited Laboratory Combined ILAC MRA Mark for accreditation activities covered by the scope of its ILAC MRA signatory status. NVLAP conforms to the rules for the use of the ILAC MRA Mark as set forth in ILAC-R7:05/2015, *Rules for the Use of the ILAC MRA Mark*.

E.2 Policy for use of the Accredited Laboratory Combined ILAC MRA Mark

The use of the Accredited Laboratory Combined MRA Mark (hereinafter called the "Mark") is governed by the requirements for use of the NVLAP term and symbol as set out in Annex A. Permissible uses include reports and certificates, letterheads, contracts, business cards, brochures, advertising, and websites.

E.3 Request from an accredited laboratory to use the Mark

E.3.1 A laboratory wishing to use the Mark shall hold an accreditation within a field of accreditation covered by NVLAP's scope of recognition under the ILAC MRA. The laboratory shall send a request to NVLAP that includes:

- the policy and procedure for controlling the Mark as described in E.4 a);
- an example of the Mark in a format that complies with the rules for reproduction in E.5.

E.3.2 The laboratory shall not use the Mark before written approval is received from NVLAP.

E.3.3 Permission to use the Mark extends only to accredited laboratories established in economies where the Mark is registered; however the laboratory may be able to use the Mark for activities undertaken outside the economy.

E.4 Conditions for use of the Mark

By signing the NVLAP conditions for accreditation (see Annex C), the laboratory agrees to fulfilling the following conditions for using the Mark.

a) The laboratory shall have a policy and procedure for controlling the use of the Mark. This procedure may be combined with the policy and procedure for controlling the use of the term *NVLAP* and the NVLAP symbol [see Annex A, A.2 a)].

b) The laboratory shall meet the same requirements for referencing the Mark as those published for referencing NVLAP accreditation in Annex A, with the exception of the rules for reproduction. The rules for reproduction of the Mark are set out in E.5 below and supersede those in Annex A, A.3.1, b), c) and e).

E.5 Reproduction of the Mark

E.5.1 A laboratory shall use the Mark in the proportions shown in Figure 1 below. It shall not be distorted, compressed, or stretched in any way.

E.5.2 The text within the Mark (ILAC MRA, NVLAP, NVLAP Lab Code, and type of accreditation activity) shall be readable.

E.5.3 The laboratory shall use the Mark on a background that will not impede readability.

E.5.4 The laboratory may reproduce the Mark in black and white or in one of the following approved colors:

- Process (CMYK) Color Breakdown (C100 M56 Y0 K0)
- Pantone (PMS) Color Breakdown (Pantone 293c, blue)
- Website (RBG) Color Breakdown (R0 G0 B229).

NOTE An electronic copy of the Mark is available from NVLAP upon request.

E.6 Misuse of the Mark

E.6.1 NVLAP will monitor the use of the Mark by accredited laboratories in conjunction with monitoring the use of the NVLAP symbol.

E.6.2 NVLAP will take action on inappropriate uses of the Mark. Such action may include a request for corrective action, suspension or revocation of accreditation, or legal action.

E.7 Examples of the Accredited Laboratory Combined ILAC MRA Mark

The template and proportions for the Mark are shown in Figure 1.

Figure 1. Accredited Laboratory Combined ILAC MRA Mark

NISTHB 150-11

NVLAP Electromagnetic Compatibility and Telecommunications

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National Institute of Standards and Technology
U.S. Department of Commerce

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April 2013

U.S. Department of Commerce
Rebecca Blank, Acting Secretary

National Institute of Standards and Technology
Patrick D. Gallagher, Under Secretary of Commerce for Standards and Technology and Director

NVLAP AND THE NVLAP LOGO

The term *NVLAP* and the NVLAP logo are registered marks of the Federal Government, which retains exclusive rights to control the use thereof. Permission to use the term and symbol (NVLAP logo with approved caption) is granted to NVLAP-accredited laboratories for the limited purpose of announcing their accredited status, and for use on reports that describe only testing and calibration within the scope of accreditation. NVLAP reserves the right to control the quality of the use of the NVLAP term, logo, and symbol.

Contents

Foreword

The NIST Handbook 150 publication series sets forth the procedures, requirements, and guidance for the accreditation of testing and calibration laboratories by the National Voluntary Laboratory Accreditation Program (NVLAP). The series is comprised of the following publications:

- NIST Handbook 150, *NVLAP Procedures and General Requirements*, which contains the general procedures and requirements under which NVLAP operates as an unbiased third-party accreditation body;

- NIST Handbook 150-xx program-specific handbooks, which supplement NIST Handbook 150 by providing additional requirements, guidance, and interpretive information applicable to specific NVLAP laboratory accreditation programs (LAPs).

The program-specific handbooks are not stand-alone documents, but rather are companion documents to NIST Handbook 150. They tailor the general criteria found in NIST Handbook 150 to the specific tests, calibrations, or types of tests or calibrations covered by a LAP.

NIST Handbook 150-11, *NVLAP Electromagnetic Compatibility and Telecommunications*, presents the technical requirements and guidance for the accreditation of laboratories under the NVLAP Electromagnetic Compatibility and Telecommunications (ECT) LAP. The 2013 edition of NIST Handbook 150-11 supersedes and replaces all previous editions.

The handbook was revised with the participation of technical experts in the field of electromagnetic compatibility and telecommunications testing and was approved by NVLAP. The following main changes have been made to this handbook:

- content that was determined to be redundant with NIST Handbook 150 has been removed;
- clarifying text has been added to certain technical requirements to reduce ambiguity and improve understanding;
- identification of the minimum level and frequency of participation in proficiency testing activity required has been included, as well as the review of the participation and performance during the assessment and accreditation decision process;
- editorial revisions have been made to improve readability and consistency with other NVLAP publications, as well as minor technical revisions such as updating references and definitions.

Annex A (informative) provides a list of major ECT standards-issuing bodies, acronyms commonly cited, and the national economies for which the standards have been issued.

This handbook is also available on the NVLAP website, <http://www.nist.gov/nvlap>.

Questions or comments concerning this handbook should be submitted to NVLAP, National Institute of Standards and Technology, 100 Bureau Drive, Stop 2140, Gaithersburg, MD, 20899-2140; phone: 301-975-4016; fax: 301-926-2884; e-mail: nvlap@nist.gov.

Introduction

General

All electrical devices are potential sources of electromagnetic energy and are potentially affected by electromagnetic energy emitted from other electrical devices in their vicinity. These emissions may interfere with the performance and safe operation of a device. In fact, an electrical device is classified as either a non-intentional radiator, generating emissions as a by-product of normal operation (for example, a television or personal computer), or as an intentional radiator (for example, a citizens band radio or cell phone).

Electromagnetic Compatibility (EMC) is the ability of a device, product, or system to operate properly in its intended electromagnetic environment without degradation and without being a source of electromagnetic interference (EMI). As more sophisticated and sensitive electronic devices enter the marketplace, electromagnetic compatibility becomes more and more important.

In order to achieve EMC, governments set limits, and device manufacturers, including device purchasers, set requirements for the design, production, and operation of electronic systems that are electromagnetically compatible with their environments.

Types of requirements

In the United States, the U.S. Federal Communications Commission (FCC) sets requirements for various commercial and consumer electronic devices and systems. Commonly cited standards outside the United States include International Electrotechnical Commission (IEC) and Comité International Spécial des Perturbations Radioélectriques (International Special Committee on Radio Interference) (CISPR) standards.

With the global nature of trade, the devices manufactured must meet the EMC requirements of the economies in which they are sold. Governments, buyers, and manufacturers often cite international EMC voluntary standards. To meet this need NVLAP tracks and accredits to a list of test method requirements in the ECT LAP.

Some categories of standards have evolved from older application categories, including telephony and radio communications. As early as 1977, the International Organization for Standardization (ISO) began to develop its Open Systems Interconnection Basic Reference Model as an abstract description for communications and computer network protocol design, including physical standards, protocol standards, and interoperability standards. Also included are “harms to the network” test methods for wired telecommunications. Network Equipment Building System (NEBS) standards apply to the broad array of devices intended for the central office (CO) environment and procurements by Local Exchange Carriers (LECs), Competitive Access Providers (CAPs), Competitive Local Exchange Carriers (CLECs), Internet Service Providers (ISPs), and Access Service Providers (ASPs).

Some EMC requirements are based on the intended usage environment of the product, often more extreme than normal business and other public applications. For example, U.S. Military Standards (MIL-STD) 461/462 impose requirements for devices used in various ground, flight, and naval environments. Radio Technical Commission for Aeronautics, now RTCA, Inc., (RTCA) DO-160 test methods apply to devices dedicated to aeronautical environments.

Some standards that are not directly EMC standards, such as energy efficiency, product safety, and RF exposure, are also included in the ECT LAP.

History of the NVLAP ECT Program

The NVLAP ECT Program for FCC test methods was established in October 1985 in response to a request from five private-sector testing laboratories. The purpose of the program was to formally recognize laboratories found competent to perform testing in accordance with Title 47 of the U.S. Code of Federal Regulations (CFR) Part 15-Radio Frequency Devices and 47 CFR Part 68-Connection of Terminal Equipment to the Telephone Network. The program was expanded in 1988 in response to a request from the Naval Air Systems Command (NAVAIR) for the establishment and maintenance of adequate technical resources for MIL-STD-462 Acceptance Testing as part of the NAVAIR Search for Excellence program. The purpose of that part of the program is to assess and accredit laboratories that produce reliable test data for the U.S. military.

Present status of the NVLAP ECT Program

At the time of publication, this handbook covers test methods used to demonstrate compliance with FCC requirements given in 47 CFR, Telecommunication, Parts 0 through 101, the test methods in MIL-STD 461/462, the ANSI C63 standards, and the international standards IEC 61000-4-x series and CISPR product standards line (e.g., CISPR 11 and CISPR 22).

Other test methods used to demonstrate compliance with specific national standards for electromagnetic compatibility are also covered. These standards include, but are not limited to, Australia and New Zealand (AS/NZS) standards, Australian Communications and Media Authority (ACMA) Technical Specifications (TSs), Chinese National Standards (CNS), and Canadian Compliance Specifications (CS) 03. In addition, by virtue of a memorandum of understanding between NVLAP and the VCCI Council (VCCI) of Japan, NVLAP provides ISO/IEC 17025 accreditation of any electromagnetic compatibility-testing laboratory to the Normative Annex 1 Technical Requirements of Regulations (VCCI V-3) for voluntary control measures of VCCI.

Due to periodic updates and modifications to international, national, and regional requirements, users of this handbook should check frequently with the issuing bodies of the applicable standards and requirements for changes and additions. Please check the NVLAP website or contact the ECT Program Management on questions about specific standards for which accreditation is available or may be made available. Informative Annex A provides the names and acronyms of the common EMC standards organizations and, where applicable, the national economies for which the standards have been issued.

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1 General information

1.1 Scope of handbook

1.1.1 NIST Handbook 150-11 identifies the program-specific requirements and provides guidance for the accreditation of laboratories under the NVLAP Electromagnetic Compatibility and Telecommunications Laboratory Accreditation Program (ECT LAP). It supplements the NVLAP procedures and general requirements found in NIST Handbook 150, *NVLAP Procedures and General Requirements*, by tailoring the general criteria found in NIST Handbook 150 to the specific tests and types of tests covered by the ECT LAP.

1.1.2 NIST Handbook 150, this handbook, and their respective checklists (see 1.6) constitute the collective body of requirements that must be met by a laboratory seeking NVLAP accreditation for the ECT LAP.

1.1.3 This handbook does not contain the general requirements for accreditation. The general requirements are included in NIST Handbook 150. This handbook is intended for information and use by accredited ECT laboratories, assessors conducting on-site assessments, laboratories seeking accreditation, other laboratory accreditation systems, users of laboratory services, and others needing information on the requirements for accreditation under the ECT LAP.

1.2 Organization of handbook

The numbering and titles of the first five clauses of this handbook match those of NIST Handbook 150. The primary subclauses in clauses 4 and 5 (e.g., 4.1, 4.2, etc.) are also numbered and titled to correspond with those of NIST Handbook 150, even when there are no requirements additional to those in NIST Handbook 150.

1.3 Program description

The purpose of the ECT LAP is to accredit testing laboratories found capable and competent to perform EMC conformance testing to FCC, MIL-STD, IEC, EN, CISPR, and other test method standards that have been and may be added to the program.

The program includes standards for the testing of both intentional radiators (i.e., radio transmitters) and unintentional radiators (i.e., digital devices), as well as wireless and wired telecommunications products. The program also includes various test standards for conformance, performance, and/or interoperability. In addition, the program envelops test standards that are part of the FCC regulatory requirements associated with radio frequency (RF) safety.

The NVLAP ECT program includes test method standards for many areas including:

- Electromagnetic emissions;
- Electromagnetic immunity;
- Mil-Stds electromagnetic compatibility (emissions and susceptibility);

- Energy Star;
- Telecommunications;
- Radio conformance;
- Product Safety;
- RF Exposure.

Laboratories may seek accreditation in test methods in any of the areas listed above.

1.4 References

The following references are important for the application of this handbook. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document applies.

— NIST Handbook 150, *NVLAP Procedures and General Requirements*

— 47 U.S. Code of Federal Regulations (CFR) Telecommunication, Parts 0 through 101

— ISO 7637-2, *Road vehicles — Electrical disturbances from conduction and coupling — Part 2: Electrical transient conduction along supply lines only*

— ISO/IEC 17043:2010, *Conformity assessment – General requirements for proficiency testing*

— ISO/IEC Guide 98-3:2008, *Uncertainty of measurement - Part 3: Guide to the expression of uncertainty in measurement (GUM:1995)*

— ISO/IEC Guide 99:2007, *International vocabulary of metrology – Basic and general concepts and associated terms (VIM)*

1.5 Terms and definitions

For the purposes of this handbook, the terms and definitions given in NIST Handbook 150, the terms and definitions given in the standards, for which the laboratory seeks accreditation, and the following terms, which are contained in ISO/IEC Guide 99 (2007) apply.

1.5.1
calibration
Operation that, under specified conditions, in a first step establishes a relation between the quantity values with measurement uncertainties provided by measurement standards and corresponding indications with associated measurement uncertainties and, in a second step, uses this information to establish a relation for obtaining a measurement result from an indication. A calibration may be expressed by a statement, calibration function, calibration diagram, calibration curve, or calibration table. In some cases it may consist of an additive or multiplicative correction of the indication with associated measurement uncertainty.

1.5.2
uncertainty budget
Statement of a measurement uncertainty, of the components of that measurement uncertainty, and of their calculation and combination.

1.5.3
validation
Verification, where the specified requirements are adequate for the intended use.

1.5.4
verification
Provision of objective evidence that a given item fulfills specified requirements. When applicable, measurement uncertainty should be taken into consideration.

1.6 Program documentation

1.6.1 General

Assessors use NVLAP checklists and test method review summary forms to ensure assessment consistency. Checklists assist assessors in documenting compliance with the NVLAP requirements found in NIST Handbook 150, this handbook, and the specific test methods for which accreditation is requested. Checklists and test method review summary forms are part of the On-Site Assessment Report (see NIST Handbook 150). These documents are available on the NVLAP website, <http://www.nist.gov/nvlap>.

1.6.2 NIST Handbook 150 Checklist

All NVLAP programs use the NIST Handbook 150 Checklist, which contains the requirements published in NIST Handbook 150. The checklist items are numbered to correspond to clauses 4 and 5 and annexes A and B of NIST Handbook 150.

1.6.3 NIST Handbook 150-11 Checklist

The NIST Handbook 150-11 Checklist (also referred to as the ECT Program-Specific Checklist) addresses the requirements specific to electromagnetic compatibility and telecommunications testing given in NIST Handbook 150-11. Other checklists (such as Handbook 150-11A, a checklist for FCC Parts 2, 15, and 18) may apply and are available on the NVLAP website.

1.6.4 Test Method Review Summary

Because of the very large number of relevant standards and test methods in the ECT LAP, the assessor uses Test Method Review Summary forms, along with applicable checklists, to evaluate the laboratory's compliance to the test methods. The evaluation of the test methods by the assessor ranges from observing tests to having laboratory staff describe the test procedures. The assessor notes on the Test Method Review Summary form the depth into which each part of the test method was reviewed (Observed Test, Examined Apparatus, Walked/Talked Through Test, Listened to Description of Procedures).

1.6.5 NVLAP Lab Bulletins

NVLAP Lab Bulletins are issued to laboratories and assessors, when needed, to clarify program-specific requirements and to provide information about the most current program additions and changes. Lab

Bulletins providing additions or changes to the current program will supersede the requirements of the current published handbook until such time as the additions or changes are published in a revision of the handbook. Lab Bulletins are posted on the program-specific handbooks page of the NVLAP website.

2 LAP establishment, development and implementation

This clause contains no information additional to that provided in NIST Handbook 150, clause 2.

3 Accreditation process

3.1 General

An overview of the laboratory accreditation process is provided in NIST Handbook 150, clause 3, and includes information pertaining to application for accreditation; on-site assessment; proficiency testing; accreditation decision; granting accreditation; renewal of accreditation; changes to scope of accreditation; monitoring visits; and suspension, denial, revocation, and voluntary termination of accreditation.

3.2 Management system review

3.2.1 Prior to the on-site assessment, the lab is requested to provide a cross-reference document allowing a NVLAP assessor to verify that all requirements of clauses 4 and 5 and annexes A and B of NIST Handbook 150 and the corresponding NIST Handbook 150-11 are addressed in the management system documentation. The cross-reference document should verify that all requirements of this handbook and clauses 4 and 5 and annexes A and B of NIST Handbook 150 are addressed and their locations clearly identified in the management system documentation.

3.2.2 Prior to the on-site assessment, the assigned assessor will review all relevant management system documentation against NVLAP requirements, including the requirements of this handbook and NIST Handbook 150. During this review, the assessor may request additional management system documents and/or records, which will be returned upon request. Because of the very large number of relevant standards in the ECT LAP, relevant test method(s), operator instructions, and/or test procedures may be requested by the assessor for review in advance of the on-site assessment.

3.3 On-site assessment

3.3.1 General information

3.3.1.1 The purpose of the on-site assessment is to determine the laboratory's compliance with NIST Handbook 150, this handbook, and its own management system and to assess the capability and competence of the testing activities for which accreditation is being requested.

3.3.1.2 For laboratories that perform testing at locations other than the primary facility covered under the accreditation, these will be reviewed on a case-by-case basis to determine the extent of on-site review necessary.

3.3.1.3 Prior to the on-site assessment, the NVLAP assessor will provide a preliminary agenda. The laboratory shall be prepared to conduct test demonstrations, have equipment in good working order, and be ready for examination according to the requirements identified in this handbook, NIST Handbook 150, Handbook 150-11A Checklist (if applicable), and the laboratory's management system.

3.3.1.4 The laboratory shall make available all supporting technical information. All relevant documentation shall be provided to NVLAP and its assessors in English.

3.3.1.5 In addition to the checklists, to help assure the completeness, objectivity, and uniformity of the on-site assessment, the assessor uses the NVLAP Test Method Review Summary form to review the capability of the laboratory personnel to perform testing for which accreditation is sought. The test method review ranges from observing tests to having laboratory staff describe the test procedures. The assessor notes the depth to which each part of the test method was reviewed and records the results of the review.

3.3.2 Typical on-site assessment

3.3.2.1 Assessment activities

The NVLAP assessor performs the following activities during a typical on-site assessment:

a) Conducts an opening meeting with the laboratory to explain the purpose of the on-site visit and to discuss the schedule for the day(s). At the discretion of the laboratory manager, other staff may attend the meeting.

b) Reviews laboratory documentation not provided for review prior to the assessment, including the management system, equipment and maintenance records, record-keeping procedures, testing procedures, laboratory test records and reports, personnel competency records, personnel training plans and records, and safeguards for the protection of sensitive and proprietary information.

   At least one laboratory staff member shall be available to answer questions; however, the assessor may request to review the documents and records alone.

c) Physically examines equipment and facilities, observes the demonstration of selected procedures by the appropriate personnel assigned to conduct the tests, and interviews those personnel. The demonstrations requested may be selective or all-inclusive and shall include the use of sample test devices, preparation of the test device, and establishment of test conditions and the setup/use of major equipment. The assessor will also review the test data and examine the hardware/software for functionality and appropriateness.

d) Completes an On-Site Assessment Report, which contains the NVLAP On-Site Assessment Signature Sheet with Narrative Summary, NIST Handbook 150 Checklist, NIST Handbook 150-11 Checklist, NIST Handbook 150-11A Checklist (if applicable), and the Test Method Review Summary form.

   Comments in the report should be given serious consideration by the laboratory, but no action is mandated and changes are made at the laboratory's discretion. Comments are those areas of concern where a nonconformity may arise; however, no objective evidence is available to support citing a nonconformity. Historically, it has been noted that comments often rise to the level of nonconformities on subsequent assessments. As such, comments noted in the assessment will be

reviewed at the next on-site assessment to ensure that these issues have not risen to the level of nonconformities since the last on-site visit.

e) Conducts a closing meeting with the laboratory to explain the findings of the visit. At the closing meeting, the report shall be signed by the assessor and the laboratory's Authorized Representative to acknowledge the discussion of the outcome of the on-site assessment. The Authorized Representative's signature does not necessarily indicate agreement, and challenges may be made through NVLAP. The process for resolving nonconformities identified during the on-site is documented in NIST Handbook 150.

3.3.2.2 Proficiency testing

NVLAP does not organize a proficiency testing scheme for the ECT program. The laboratory shall assure the quality of tests in accordance with NIST Handbook 150-11, 5.9. The results of the quality assurance monitoring will be reviewed by the assessor during the on-site assessment.

3.3.3 Specific requirements for ECT on-site assessments

3.3.3.1 All laboratory equipment required to perform accredited testing, including equipment that is rented to perform testing, shall be available for assessment and in compliance with testing requirements. The assessor will physically examine equipment and facilities. This includes storage areas, shielded enclosures, open area test sites (OATS), anechoic and semi-anechoic chambers, pre-scan areas, test benches, electronics, test jigs, and antennas, as appropriate.

3.3.3.2 The laboratory shall have normalized site attenuation (NSA) measurement reports for all OATS and semi-anechoic chambers that are used for work under the NVLAP scope of accreditation and make these reports available to the assessor. The assessor will review these NSA measurement reports during the on-site assessment for adequacy and completeness. For test sites used for conducting tests above 1 GHz, the laboratory shall make available for review the results of the Site Voltage Standing Wave Ratio (SVSWR) for each test site.

3.3.3.3 For FCC CFR Part 68-Connection of Terminal Equipment to the Telephone Network, and other similar standards and regulations, an appropriate test artifact shall be used to demonstrate the test equipment.

3.3.4 Demonstrations

3.3.4.1 Assessor safety

The assessor may decline to observe a potentially hazardous test unless appropriate measures are taken.

3.3.4.2 Conducted and radiated emissions measurements

Demonstrations shall include the use of receivers and/or spectrum analyzers in shielded enclosures, pre-scan areas, OATS, and/or fully or semi-anechoic chambers.

3.3.4.3 Test site validation as part of demonstration

3.3.4.3.1 As part of the demonstration of measurement, an OATS or an alternative site, for testing performed below 1 GHz, shall be validated at least at three frequencies of measure in both horizontal and

vertical polarization at a single test distance. This information is recorded in NIST Handbook 150-11A, *ECT: FCC Parts 2, 15 and 18* Checklist.

For laboratories using outside services to perform normalized site attenuation (NSA), the capability to perform NSA shall be available during the on-site assessment.

3.3.4.3.2 For test sites used for conducting tests above 1 GHz, the laboratory shall make available for review the results of the Site Voltage Standing Wave Ratio (SVSWR) for each test site.

3.3.4.4 Demonstrations for multiple facilities

If the laboratory maintains more than one OATS and/or alternative site, the assessor will ask questions to determine whether all sites are operated and equipped such that the requirements of NVLAP, applicable regulatory bodies, and the test methods within the laboratory's scope of accreditation are met. Usually one site will be examined; however, at the discretion of the assessor, more than one site may be examined.

3.3.5 Nonconformity resolution

The laboratory shall resolve all nonconformities and provide a response to NVLAP within 30 days from the date of completion of the on-site assessment.

4 Management requirements for accreditation

4.1 Organization

There are no requirements additional to those set forth in NIST Handbook 150.

4.2 Management system

4.2.1 The laboratory shall ensure that the requirements of NIST Handbook 150 are met so that staff are knowledgeable of the electronic or paper-based documentation system and can demonstrate, if authorized, the retrieval of needed documents and/or records.

4.2.2 The laboratory shall have readily available the regulation(s) and the applicable version of the standard(s) for the test methods for which accreditation has been requested.

4.2.3 When a test method references another test method, guide, practice, or specification, which contains the procedure for the testing process, the laboratory shall have readily available the referenced documents.

4.3 Document control

The master list or document control procedure that identifies the current revision status and distribution of documents shall include all national and/or international standards on the requested scope of accreditation (see NIST Handbook 150, 4.3.2.1).

4.4 Review of requests, tenders, and contracts

All requests, tenders, and contracts shall be available for selection and examination by the assessor for the period of time covered between the on-site assessments.

4.5 Subcontracting of tests

There are no requirements additional to those set forth in NIST Handbook 150.

NOTE Subcontracting applies to any of the test methods on the scope of accreditation.

4.6 Purchasing services and supplies

There are no requirements additional to those set forth in NIST Handbook 150.

NOTE Laboratories should pay special attention to the purchasing of calibration services from calibration service providers. The technical requirements of the calibration shall be specified by the laboratory (per NIST Handbook 150, 4.6.3) as well as conformance to the appropriate traceability requirements in Annex B of NIST Handbook 150. Assessors will seek to determine that laboratory calibration records identify the measurement parameters, as well as the traceability chain for each parameter.

4.7 Service to the customer

There are no requirements additional to those set forth in NIST Handbook 150.

4.8 Complaints

There are no requirements additional to those set forth in NIST Handbook 150.

4.9 Control of nonconforming testing work

There are no requirements additional to those set forth in NIST Handbook 150.

4.10 Improvement

There are no requirements additional to those set forth in NIST Handbook 150.

4.11 Corrective action

There are no requirements additional to those set forth in NIST Handbook 150.

4.12 Preventive action

There are no requirements additional to those set forth in NIST Handbook 150.

4.13 Control of records

There are no requirements additional to those set forth in NIST Handbook 150.

4.14 Internal audits

4.14.1 The internal audit shall cover compliance with NVLAP accreditation requirements, the laboratory's management system, as well as regulatory, contractual, and testing requirements.

4.14.2 An applicant laboratory shall conduct at least one complete internal audit prior to the first on-site assessment. The records will be reviewed by the NVLAP assessor before or during the on-site assessment visit.

4.14.3 For accredited laboratories, records of internal audits conducted since the previous on-site assessment shall be made available for review.

4.15 Management reviews

4.15.1 An applicant laboratory shall perform at least one complete management review prior to the first on-site assessment. The records will be reviewed by the NVLAP assessor before or during the on-site assessment visit.

4.15.2 For accredited laboratories, records of management reviews conducted since the previous on-site assessment shall be made available for review.

5 Technical requirements for accreditation

5.1 General

There are no requirements additional to those set forth in NIST Handbook 150.

5.2 Personnel

There are no requirements additional to those set forth in NIST Handbook 150.

5.3 Accommodation and environmental conditions

5.3.1 FCC Part 15-Radio Frequency Devices: If a test site other than an OATS is used, a complete description shall be available along with documentation of equivalence.

5.3.2 All parts of the test site shall be operational and available for inspection during the on-site visit. The site attenuation shall be checked per ANSI C63.4 and complete written records shall be maintained. The site attenuation shall also be checked if significant changes are made in or near the OATS. This information will be reviewed during the on-site assessment visit.

5.3.3 FCC Part 68-Connection of Terminal Equipment to the Telephone Network: The laboratory shall have a procedure for checking the testing system before each use. This is especially important for automated systems. The laboratory shall have at least one telephone device reserved for use in periodic checks of the test system.

5.4 Test methods and method validation

Measurement uncertainty is addressed in different ways depending on the test method standards that are employed.

a) If measurement uncertainty can be calculated from Type A and B uncertainties, then the procedure shall follow the GUM or NIST Technical Note 1297 (see references in NIST Handbook 150, 1.4). Unless stated by the standard, the coverage factor (*k*) shall be equal to 2 (two) such that the confidence interval is approximately 95 %.

b) In some instances, the standard provides a measurement uncertainty budget as part of the test method. Examples include European Telecommunications Standards Institute (ETSI) standards concerning radio measurements. Each measurement uncertainty budget shall be supported with calibration and computational data applicable to the test method as performed by that laboratory.

c) In some instances, the standard provides a tolerance for the test method (and does not refer to "measurement uncertainty"). Examples include MIL-STD 461E:1999, 4.2.1 (d), which defines a ±3 dB tolerance for the measurement system (and an antenna to receiver tolerance of ±3 dB). The tolerance stated in the standard shall be supported by calibration data, measurement uncertainty budgets and/or other appropriate calculations.

d) In some instances, the standard provides a tolerance for the test components and/or instrumentation, but not for the test method. The tolerance shall be supported by instrument specifications, calibration and computational data, or comparison to some other appropriate measurement standard. At this time, there are no additional requirements beyond those in NIST Handbook 150, 5.4.6.2 - 5.4.6.3.

e) In all other cases, the requirements in NIST Handbook 150, 5.4.6.2 - 5.4.6.3 apply.

5.5 Equipment

5.5.1 Shielded enclosure

The laboratory shall specify how it monitors and records the performance of its shielded enclosure, how often, and what data shall be recorded. For example, any changes made in or near the shielded enclosure should warrant that the enclosure's performance be verified. Requirements for checking associated critical equipment, such as power line filters, and grounding systems shall also be specified and the results documented.

5.5.2 Line impedance stabilization networks

Line impedance stabilization networks (LISN) shall be calibrated for insertion loss and the impedance verified at least once per year.

5.5.3 Equipment that produce transient waveforms

Equipment that produce transient waveforms (i.e., ESD simulators, burst generators, surge generators, automotive transient generators [per ISO 7637-2], and similar equipment) shall be verified with an oscilloscope at least once per year and photographs of the waveform verification shall be kept on file.

NOTE The waveform verification is performed in accordance with NIST Handbook 150, 5.5.10 for intermediate checks. It is not intended to replace the calibration schedule for the instrument.

5.5.4 Software

Software associated with automated test equipment (either stand-alone or computer-controlled) shall be validated before use. This includes validation of any software updates from the original equipment manufacturer (OEM) or other source.

5.6 Measurement traceability

If a laboratory calibrates its own antennas, spectrum analyzers, and/or measurement receivers, procedures and instructions for those calibrations, in accordance with the manufacturer's calibration process and test method requirements, shall be maintained. Measurement uncertainties associated with these calibrations shall be estimated and reported in the calibration documentation. Antennas shall be calibrated to a recognized standard (e.g., ANSI C63.5, SAE ARP-958).

5.7 Sampling

There are no requirements additional to those set forth in NIST Handbook 150.

NOTE The requirements in NIST Handbook 150 for sampling pertain to a laboratory's selecting the sample to be tested. For most ECT test methods, the sample(s) is(are) selected by the laboratory's customer.

5.8 Handling of test items

There are no requirements additional to those set forth in NIST Handbook 150.

5.9 Assuring the quality of test results

5.9.1 The laboratory shall have procedures for the quality control activities performed to assure the validity of the tests. These procedures shall include predefined criteria.

NOTE 1 NIST Handbook 150, 5.9.1 identifies a number of monitoring methods that may be utilized to ensure the validity of tests. Laboratories could meet the requirements of section 5.9.1 by participation in proficiency testing or interlaboratory comparisons (ILCs), when available.

NOTE 2 NIST Handbook 150, 5.9.1 requires the resulting data to be recorded in such a way that trends are detectable and, where practicable, statistical techniques be applied to the review of the results.

5.9.2 The laboratory shall have a plan for monitoring the quality control activities performed. These activities are to be planned so that a minimum of one activity per year is performed, ensuring that each ECT category (reference section 1.3) of a laboratory's scope of accreditation is covered within four years.

5.9.3 Laboratories shall participate in proficiency testing when NVLAP announces plans to conduct a proficiency test.

5.9.4 The laboratory shall evaluate the quality monitoring results against the predefined criteria. The laboratory shall follow NIST Handbook 150, 4.9 for the control of nonconforming work, as well as section 4.11 for corrective action (where appropriate), whenever outliers are identified.

5.10 Reporting the results

There are no requirements additional to those set forth in NIST Handbook 150. Test methods, standards, specifies, customers, and regulators may have special reporting requirements.

6 Additional requirements

There are no additional requirements beyond NIST Handbook 150 and its associated normative annexes, and any other normative references cited in this handbook.

Annex A

(informative)

Information about selected ECT standards

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Names, acronyms, and national economies of standards-issuing bodies for common ECT standards

Name of standard or standards body	Acronym	National economy
American National Standards Institute	ANSI	United States
Association of Radio Industries and Businesses	ARIB	Japan
ASTM International (formerly American Standards and Testing Materials)	ASTM	United States
Australian Communications and Media Authority	ACMA	Australia
Australian Communications Industry Forum	ACIF	Australia
Australian Standard/New Zealand Standard	AS/NZS	Australia and New Zealand
British National standard	BN	United Kingdom
British Standard	BS	United Kingdom
Broadcasting Equipment Technical Standards	BETS	Canada
Bureau of Standards, Metrology and Inspection	BSMI	Taiwan
Canadian Standards Association	CSA	Canada
Chinese National Standards	CNS	Taiwan
Comité European de Normalisation Electrotechnique (European Committee for Electrotechnical Standardization)	CENELEC	European Union
Directorate General of Telecommunications	DGT	Taiwan
Electronic Industries Alliance	EIA	United States
Environmental Protection Agency Energy Star	EPA Energy Star	United States
European Norms (European Standards)	EN	European Union
European Telecommunications Standards Institute	ETS or ETSI	European Union
Federal Communications Commission	FCC	United States
Federal Transit Administration (formerly the Urban Mass Transportation Administration)	FTA	United States
General Requirement (see Network Equipment Building System)	GR	
Hong Kong Telecommunications Authority	HKTA	Hong Kong
Infocomm Development Authority	IDA	Singapore

Name of standard or standards body	Acronym	National economy
Institute of Electrical and Electronics Engineers, Inc.	IEEE	
Interference-Causing Equipment Standard	ICES	Canada
International Electrotechnical Commission	IEC	
International Organization for Standardization	ISO	
International Telecommunications Union – Telecommunication Standardization Sector	ITU-T	
Korea Communications Commission	KCC	Korea
Korean Norms	KN	Korea
Korean Standards	KS	Korea
Military Standards	MIL-STD	United States
Ministry of Information and Communication	MIC	Korea
Network Equipment Building System	NEBS	United States
Public Land Mobile Network	PLMN	Taiwan
Public Switched Telephone Network	PSTN	Taiwan
Radio Standards Specification	RSS	Canada
Radio Telecommunications Terminal Equipment	RTTE	Taiwan
RTCA (formerly Radio Technical Commission for Aeronautics)	RTCA	United States
SEMI	SEMI	
Society of Automotive Engineers, Inc.	SAE	United States
Special International Committee on Radio Interference (see also IEC)	CISPR	
Telecommunications Industry Association	TIA	United States
Underwriters Laboratories, Inc.	UL	United States
Urban Mass Transportation Administration (now the Federal Transit Administration)	UMTA	United States
VCCI Council	VCCI	Japan

Enter Date: □□□□□ **Enter NVLAP Lab Code:** □□□□□

NIST HANDBOOK 150-11A CHECKLIST
ECT: FCC Parts 2, 15, and 18

(Based on the FCC Technical Assessment Evaluation Checklist - Feb 29, 2016)

Instructions to the Assessor: This checklist addresses specific criteria relating to accreditation of a laboratory to determine the capability and competence of that laboratory to perform tests to show compliance of equipment subject to the FCC EMC Regulations contained in 47 CFR Parts 2, 15, and 18. It is intended for use during the assessment phase of the accreditation process as a guide to evaluate the capability of the applicant laboratory facility and to determine the competency of the laboratory personnel for performing the required measurements. It is not intended to replace the good engineering judgment of the technical assessor or a thorough evaluation of the facility. Other points may and should be added to this checklist as the on-site assessment progresses.

Select one of the following for each item you observed and verified at the laboratory:

- Select the letter "Y", representing "yes" to show conformance with the criteria.
- Select the letter "N", representing "No", to show a nonconformity.
- Select “N/A” if the item is “Not Applicable.”
- Record an explanation of any nonconformity or a comment in either the text box under each question or in the comments section at the end of the checklist.

I. DOCUMENTATION *(The laboratory should have copies of appropriate FCC rules, standards and measurement methods based on its scope of accreditation.)*

___ 1. ANSI C63.4-2003, *American National Standard for Method of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz*.

___ 2. ANSI C63.4-200*9, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.*

___ 3. ANSI C63.4-2014, *American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz*.

□□□□□

___ 4. ANSI C63.10-2009*, American National Standard for Testing Unlicensed Wireless Devices*.

___ 5. ANSI C63.10-2013, *American National Standard for Testing Unlicensed Wireless Devices.*

___ 6. Is the testing laboratory familiar with *KDB Publications 789033* and *905462*, and capable of testing devices subject to all Unlicensed National Information Infrastructure policy and rule requirements?

___ 7. ANSI C63.17-2013*, American National Standard Methods of Measurement of the Electromagnetic and Operational Compatibility of Unlicensed Personal Communications Services (UPCS) Devices*.

□□□□□

___ 8. ANSI C63.19-2007*, American National Standard for Methods of Measurement of Compatibility Between Wireless Communication Devices and Hearing Aids*.

___ 9. ANSI C63.19-2011*, American National Standard for Methods of Measurement of Compatibility Between Wireless Communication Devices and Hearing Aids*.

□□□□□

___ 10. Is the testing laboratory familiar with *KDB Publication 285076* and capable of testing devices subject to Hearing Aid Compatibility (HAC) requirements for mobile handsets?

___ 11. ANSI/TIA-603-D-2010*, Land Mobile FM or PM Communications Equipment Measurement and Performance Standards*.

□□□□□

___ 12. Is the testing laboratory familiar with *KDB Publication 971168* and capable of testing wideband devices operating in Commercial Mobile (Radio) Services?

□□□□□

___ 13. RF exposure KDB publications, in conjunction with the fundamental SAR concepts in IEEE Std 1528- 2013, *IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques*. KDB publication requirements take precedence over any variations in IEEE Std 1528- 2013.

□□□□□

___ 14. Is the testing laboratory familiar with *KDB Publications 447498* and *865664* and capable of testing devices subject to general RF exposure guidance and SAR measurement guidance, respectively?

□□□□□

___ 15. FCC MP-5-1986*: Methods of measurement of radio noise emissions from Industrial, Scientific and Medical (ISM) equipment*.

□□□□□

___ 16. Does the testing laboratory possess or can demonstrate access to all FCC Rules and Regulations (47 CFR) and standards for the scope of the assessment?

□□□□□

___ 17. Are the measurement antennas properly calibrated in accordance with ANSI C63.5-2006?

□□□□□

___ 18. Is any measurement software used by the testing laboratory documented in the test report?

□□□□□

___ 19. For each type and size of EUT to be measured, does each radiated emission test facility comply with the conditions and requirements of the appropriate test procedure?

□□□□□

___ 20. Are LISN(s), filters, and isolation transformers, if used, properly installed? Is the LISN bonded to the ground reference plane?

□□□□□

___ 21. Does the radiated emission test site(s) meet the site validation requirements of 5.4 of ANSI C63.4-2014 for the frequency range of 30 MHz to 1 GHz?

□□□□□

___ 22. Does the radiated emission test site(s) meet the site validation requirements of *5.5 of* ANSI C63.4-2014 for the frequency range of 1 GHz 40 GHz?

□□□□□

___ 23. Does the radiated emission test site(s) meet the site validation requirements of CISPR 16-1-4:2010-04 for the frequency range of 1 GHz 40 GHz?

□□□□□

___ 24. Was the test site validation for performing radiated emissions measurements completed in the last three years?

□□□□□

___ 25. Does the EMI receiver or spectrum analyzer cover the required frequency range per the scope of accreditation for the measurements to be performed by the testing laboratory? (47 CFR § 15.33)

□□□□□

___ 26. Does the test laboratory have an up to date description of measurement facilities as required by 47 CFR § 2.948?

□□□□□

___ 27. Is the testing laboratory familiar with KDB Publication 935210 and capable of testing devices subject to signal booster requirements?

□□□□□

II. EMISSION TESTS

___ 28. Are the AC power-line conducted emission tests performed in accordance with the applicable parts of *ANSI C63.4-2014* and *47 CFR §§ 15.31-15.35 and 15.107*?

___ 29. Are the guidelines in ANSI C63.4 and FCC MP-5 followed for large EUTs, including *in-situ* measurements, if appropriate?

___ 30. Is the conducted emission test setup in accordance with ANSI C63.4 with the required separation between the EUT and any conducting surfaces maintained?

□□□□□

___ 31. Is the EUT connected to one LISN and all the peripherals connected to one or more LISNs or a power strip to one LISN; i.e., per ANSI C63.4- 2014?

___ 32. For each type of EUT, are measurements made over the correct frequency ranges and the correct detectors and bandwidth as required by 47 CFR §§ 15.33, 15.35, and 18.309?

___ 33. Are the radiated emission tests performed in accordance with the proper standard?

___ 34. Were radiated emission tests observed, and is the radiated emission test setup in accordance with proper standard?

___ 35. Are unintentional radiators, other than ITE, tested in accordance with the requirements in 47 CFR § 15.31 and the procedures in the appropriate standard?

___ 36. Are intentional radiators tested in accordance with the requirements in 47 CFR § 15.31 and the procedures in the appropriate standard?

□□□□□

___ 37. Does the radiated emission measurement represent the maximized cable configuration and worst case mode of EUT operation?

___ 38. For each type of EUT, are the correct frequency ranges investigated and the correct measurement detectors and bandwidth used per 47 CFR §§ 15.33 and 15.35*?*

□□□□□

___ 39. If the laboratory has a TEM waveguide, are the requirements followed in making radiated emission measurements using TEM waveguides? (ANSI C63.4, KDB Publication 823311)

III. TEST REPORTS *(Assessor should request to review several sample test reports for various types of products.)*

___ 40. Have several sample test reports for various types of products been reviewed for accuracy?

□□□□□

___ 41. Does each of the test reports contain all the required information, and does the laboratory follow the report disposition procedure?

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___ 42. Does the test report reference the standard used and specify any deviations?

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___ 43. Is the rationale for selecting and arranging the EUT clearly stated, and are the components of the EUT system clearly identified?

___ 44. Does the test report include photographs or detailed sketches of the EUT configuration?

___ 45. Does the measurement report include a sample calculation with all conversion and correction factors used?

___ 46. Does the testing laboratory use external resources/subcontractors to perform testing, and if so do they have procedures in place to ensure that the external resources are properly accredited and FCC recognized?

___ 47. If external resources/subcontractors are used to perform testing, do the test reports clearly identify the work performed by the external resources/subcontractors and the results of the testing?

IV. PERSONNEL COMPETENCY (*The following is a list of general or lead-in questions, which are intended to be used as a guide to assess competency of laboratory personnel. Additional specific questions should be used to determine the technical competency of the personnel performing the measurement.*)

___ 48. Are laboratory personnel able to obtain recent FCC Rules and appropriate KDB guidance?

□□□□□

___ 49. Has each laboratory personnel responsible for testing been able to demonstrate performing a measurement of an applicable device?

___ 50. Do the test personnel know how to determine if an emission is from the EUT or is an ambient signal? Do the test personnel know how to handle an emission that is close to, or coincident with, an ambient signal?

___ 51. Can the test personnel explain the FCC requirements for testing a product in accordance with the requirements in 47 CFR §§ 15.31 to *15.35*? Are the test personnel knowledgeable of the FCC testing conditions for different types of products?

□□□□□

___ 52. Arrange for one of the laboratory personnel, at each type of site, replicate at least three frequency points on the horizontal site attenuation, and at least three frequency points on the vertical site attenuation. Is the test performed correctly, and is the site attenuation data at these frequencies consistent with the previously recorded data?

Note: Select frequencies from previous data that have both low and high deviations from the NSA.

___ 53. For equipment requiring RF exposure evalusation (SAR and MPE), are the test personnel knowledgeable of the test reduction, test exclusion, and measurement, or if applicable, numerical simulation procedures and requirements in KDB Publications?

□□□□□

___ 54. For measurements of equipment requiring Hearing Aid Compatibility (HAC) testing, are the test personnel knoweldgeable of the test setup and procedures?

□□□□□

Go to next page. ⟶

I hereby attest that at the time of assessment, the laboratory's technical capabilities met the aforementioned requirements based on a reasonable assessment sampling basis subject to effective corrective action for any nonconformities noted in the overall Accreditation Body (AB) reports of the assessment.

Assessor(s) Signature	***Date***

The FCC has developed the questions contained in this checklist to be used by the AB to assist in the assessment of EMC testing laboratories. The FCC also requires the AB to provide them with a copy of the completed checklist revealing the technical competence of the laboratory for the specific tests required by the FCC, and to meet APEC TEL MRA obligations. Please be advised that all information provided to the FCC will be made publicly available, as directed by the Freedom of Information Act (FOIA), unless a confidentiality request is submitted to the FCC with the recognition request pursuant to 47 CFR 0.457 and 0.459. Please note that failure to authorize NVLAP to submit this document to the FCC may result in the FCC's not recognizing your laboratory as an "Accredited" testing laboratory.

I hereby grant permission to NVLAP, providing this assessment, at the request of the FCC to release a copy of this completed checklist to the FCC.

Laboratory Authorized Representative Signature	***Date***

Continue to Annex A to complete site attenuation information.

NIST HANDBOOK 150-11A CHECKLIST
COMMENTS AND NONCONFORMITIES

Instructions to the Assessor: Use this sheet to document comments and nonconformities. For each, identify the appropriate item number from the checklist. Identify each comment with a "C" and each nonconformity with an "X." If additional space is needed, make copies of this page or use additional blank sheets.

Item No.	*C or X*	*Comments and/or Nonconformities*
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Annex A: SITE ATTENUATION INFORMATION	
Please complete the Site Attenuation information below during the on-site assessment.	
NSA measurement verification facility address:	
Site Description (i.e., 3 m, 10 m, OATS, Chamber):	

Transmit antenna height:				
Test distance:				
Frequency (MHz)	***Old Value (dB)*** *(Deviation from Theoretical NSA)*	***New Value (dB)*** *(Deviation from Theoretical NSA)*	***Polarization***	***Position***
			Vertical	
			Vertical	
			Vertical	
Transmit antenna height:				
Test distance:				
Frequency (MHz)	***Old Value (dB)*** *(Deviation from Theoretical NSA)*	***New Value (dB)*** *(Deviation from Theoretical NSA)*	***Polarization***	***Position***
			Horizontal	
			Horizontal	
			Horizontal	

Note: Acceptance value is +/- 4 dB from the theoretical value (C63.4-2003, Clause 5.4.6; C63.4-2009, Clause 5.4.4, *Site quality validation; C63.4:2014, Clause 5.4.4.2 Site acceptability criterion*).

National Voluntary Laboratory Accreditation Program

OMB No.: 0693-0003
Approval Expires:
November 30, 2018

GENERAL APPLICATION FOR NEW LABORATORIES

Instructions for completing the application for accreditation

1. To fill in and save this application form, you must have the latest version of the Adobe Reader software installed on your computer. This software is freely available from the Adobe Reader website.*

2. Thoroughly review the accreditation requirements published in NIST Handbook 150, *NVLAP Procedures and General Requirements*, and in the handbook of the Laboratory Accreditation Program(s) (LAP) for which you are applying. These requirements are published on the LAP webpage for each program. See http://www.nist.gov/nvlap/.

3. Complete this interactive fillable General Application Form by entering the requested information in each highlighted box or field. To move from one field to the next, press the Tab key.

4. The laboratory's Authorized Representative (AR) must sign page 4 of the General Application to signify agreement with the NVLAP Conditions for Accreditation.

5. Send this application to NVLAP at nvlap@nist.gov. It is recommended that you retain a copy for your records. Do not pay accreditation fees at this time. Payment of fees will be handled through the NVLAP Interactive Web System (NIWS).

6. NVLAP will email an acknowledgment to the AR, along with user account information, a link to the NIWS laboratory portal, and instructions for completing the remaining application steps through the NIWS.

7. For more information, go to NVLAP's website, http://www.nist.gov/nvlap/, and click on "Apply for Accreditation." For assistance, contact NVLAP by phone, (301) 975-4016; fax, (301) 926 2884; or email, nvlap@nist.gov.

* Software is identified in order to assist users of this information service. In no case does such identification imply recommendation or endorsement by the National Institute of Standards and Technology.

PAPERWORK REDUCTION ACT NOTICE

This collection of information contains Paperwork Reduction Act (PRA) requirements approved by the Office of Management and Budget (OMB). Notwithstanding any other provisions of the law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of the PRA unless that collection of information displays a currently valid OMB control number. Public reporting burden for this collection is estimated to average 3.0 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any aspect of this collection of information, including suggestions for reducing this burden, to Chief, Laboratory Accreditation Program, NIST, 100 Bureau Drive, Stop 2140, Gaithersburg, MD 20899-2140.

DATE : **NVLAP LAB CODE:**

NVLAP GENERAL APPLICATION

1. **LEGAL NAME AND FULL ADDRESS** of the laboratory.

Laboratory Name

Address (Line 1)

Address (Line 2)

City | State | ZIP + 4

Foreign City | Foreign Postal Code

Country

2. **LABORATORY NAME AS YOU WANT IT TO APPEAR ON THE CERTIFICATE AND SCOPE OF ACCREDITATION**

3. **LABORATORY ACCREDITATION PROGRAM (LAP)** for which the laboratory is applying.

   You may select more than one program.

- ☐ Acoustical Testing Services
- ☐ Asbestos Fiber Analysis
- ☐ Biometrics Testing
- ☐ Calibration Laboratories
- ☐ Carpet and Carpet Cushion
- ☐ Construction Materials Testing
- ☐ Efficiency of Electric Motors
- ☐ Electromagnetic Compatibility &Telecom.
- ☐ Energy Efficient Lighting Products
- ☐ Fasteners and Metals
- ☐ Ionizing Radiation Dosimetry
- ☐ ITST: Common Criteria Testing
- ☐ ITST: Cryptographic & Security Testing
- ☐ ITST: Healthcare Information Tech. Testing
- ☐ Personal Body Armor
- ☐ Radiation Detection Instruments
- ☐ Thermal Insulation Materials
- ☐ Voting System Testing
- ☐ Wood-Based Products

4. **AUTHORIZED REPRESENTATIVE** of the laboratory. The Authorized Representative is responsible for ensuring that the laboratory complies with the conditions and criteria for accreditation. This person's name will appear in NVLAP directories and on Scopes of Accreditation. The Authorized Representative will receive all NVLAP correspondence, receive proficiency testing materials and reports, and be contacted about on-site assessments.

Name: _____

Title: _____

Phone No.: _____ Fax No.: _____

E-Mail: _____

DATE : _____ **NVLAP LAB CODE:** _____

CONDITIONS FOR ACCREDITATION

To become accredited and maintain accreditation, a laboratory shall agree in writing to comply with the following NVLAP conditions for accreditation:

a) comply at all times with the NVLAP requirements for accreditation as set forth in NIST Handbook 150 and relevant technical documents, including any changes to those requirements;

b) fulfill the accreditation procedure, especially to receive the assessment team and allow access to information, documents, and records;

c) when the laboratory conducts activities at clients′ sites, have arrangements to provide access to the assessment team;

d) pay the fees charged to the applicant laboratory as determined by NVLAP, and maintain relevant financial agreements;

e) participate in proficiency testing as required;

f) follow NVLAP conditions for referencing accreditation status (see Annex A and Annex E);

g) resolve all nonconformities;

h) report to NVLAP within 30 days any significant changes relevant to its accreditation, in any aspect of its status or operation relating to:

- legal, commercial, organizational, or ownership status,
- organization, top management, or ley personnel, including Authorized Representative and Approved Signatories,
- main policies,
- resources and location, including equipment, facilities, and working environment, where significant,
- scope of accreditation, or
- other matters that may affect the laboratory's ability to comply with the requirements of NIST Handbook 150 and/or relevant technical documents;

i) return to NVLAP the Certificate of Accreditation and the Scope of Accreditation should it be requested to do so by NVLAP.

In addition to the confidentiality provisions of NIST Handbook 150 paragraph 1.7, NVLAP (administered by NIST) and the laboratory seeking accreditation acknowledge and agree that the accreditation assessments and proficiency testing work done by NIST/NVLAP is done in accordance with the authority granted to NIST by Title 15 United States Code Section 3710a. The Parties further agree that to the extent permitted by law, NIST will protect information obtained during application, on-site assessment, proficiency testing, evaluation, and accreditation from disclosure pursuant to Title 15 USC 3710a(c)(7)(A) and (7)(B) for a period of five (5) years after it is obtained.

For the first five years that laboratory information is held by NVLAP, both confidentiality provisions will be in force — NIST Handbook 150 and 15USC3710a. Information in NVLAP's possession for more than five years will continue to be held in confidence under the provision of NIST Handbook 150.

As the applicant laboratory's **Authorized Representative**, I agree to the above conditions for accreditation. I attest that all statements made in this application are correct to the best of my knowledge and are made in good faith.

Signature _____ Date _____

Printed Name _____

A-Z NVLAP Assessor Biographical Summaries

Michael Cantwell has been a NVLAP Assessor since 2003. He is a licensed Professional Engineer (PE) and National Association of Radio and Telecommunication (NARTE) certified electromagnetic compatibility (EMC) Engineer. A known expert in the field of EMC, Mr. Cantwell has built and managed several EMC laboratories across the United States. He is a senior member of the Institute of Electronics and Electrical Engineers (IEEE) and a member of its EMC and Product Safety Societies. He currently holds the position of Global Regulatory Compliance Manager for Unicom Engineering in Plano, TX.

Thomas Dickten is an electrical engineer with over 25 years of experience in the fields of electromagnetic compatibility (EMC) and electrical safety. He is an expert in FCC, Industry Canada, Occupational Safety & Health Administration (OSHA), Japanese, Hong Kong and European testing requirements. In addition to serving as a Lead Assessor for multiple accreditation organizations including NVLAP, A2LA, and DAkkS (German Accreditation Body), Mr. Dickten operates Global Compliance Consulting, a California-based consultation firm specializing in Regulatory Compliance.

Daniel Hoolihan, M.S. is a physicist with over 40 years of experience in electromagnetic compatibility (EMC) engineering. Between 1969 and 2000, Mr. Hoolihan worked as Vice-President of TUV America Minnesota, Chief Operating Officer of AMADOR corporation and Scientist at Control Data Corporation. He is a Life Senior Member of the Institute of Electronics and Electrical Engineers (IEEE), having been a member since 1983. Once past-president of the EMC Society of the IEEE, Mr. Hoolihan now serves as the Chair of the History Committee of the Society. In addition to his duties as an independent consultant and EMC trainer, Mr. Hoolihan has worked as an NVLAP Assessor since 2004.

Victor Kucyzynski, M.S. is an electrical engineer, owner and President of Vican Electronics located in Toronto, Canada. He is an ISO/IEC 17025 qualified technical and lead assessor for testing and calibration laboratories in the fields of electromagnetic compatibility (EMC), telecommunications, radio frequency (RF) and microwave, electrical and environmental. He is a National Association of Radio and Telecommunication (NARTE) certified electromagnetic compatibility (EMC) Engineer. In addition, Mr. Kucyzynski has been a member of the Accredited Standards Committee C63® since 1996 and an Institute of Electronics and Electrical Engineers (IEEE) member since 1987.

Adeniyi Salam, P.E., Ph.D. is an electrical engineer, owner and Chief Technical Officer of Infinite Outlook, LLC where he serves as a national and international consultant for EMC testing, radio frequency (RF) measurements, microwave testing and calibration. He is a National Association of Radio and Telecommunication (NARTE) certified electromagnetic compatibility (EMC) Engineer and Certified Reliability Engineer (CRE). He has over 30 years of electrical engineering experience attained as an engineer at IBM, Nortel, Electric Power Authority, RELTEC Corporation, Marconi Communications and Panasonic.

Mitsunobu Samoto is an electronics engineer with over 30 years in the electromagnetic compatibility (EMC) testing industry. He is a National Association of Radio and Telecommunication (NARTE) certified EMC Engineer and Life Member of the Institute of Electronics and Electrical Engineers (IEEE). Before establishing his own company, Samoto & Associates, Ltd., Mr. Samoto served as Director and Manager of Riken Teletech Corporation, which designs and constructs EMC test facilities. He is also credited with establishing EMC business operations for two Japanese companies, Stauffer Japan Ltd. And Kashima Industries Company. Currently, Mr. Samoto acts as Chairman of Samoto & Associates, Ltd., while operating as a NVLAP Assessor.

Werner Schaefer, M.S. Mr. Schaefer is the owner and principal engineer at Schaefer Associates, a consulting firm, in Novato, CA. He has over 30 years of experience in the areas of radio frequency (RF) and wave test equipment design and calibration, metrology and electromagnetic compatibility (EMC) and RF/microwave measurements as well as quality system development and implementation. Mr. Schaefer has authored over 55 publications on

RF/microwave and other electromagnetic compatibility EMC topics. He began performing NVLAP assessments in 2007 in the fields of EMC and telecommunications.

Daniel Sigouin is an electrical engineer and subject matter expert in radiocommunication, telecommunications, electrical safety and product safety conformance. He has over 30 years of experience in electromagnetic compatibility (EMC) testing and radio standards development, much attained from his work at the Canadian Federal Government's Department of Communications. He is the current Vice Chair of the Accredited Standards Committee C63® while participating in working groups for C63.4, C63.5, C63.10, C63.25 and C63.26 method development. Mr. Sigouin has been an accreditation assessor for over 10 years.

Yukio Tanuma is an electrical engineer and current Representative Director of PCTEST Japan Co, Ltd. He has held the positions of Chief Engineer at NMi Japan Co. Ltd., EMC Manager of PCTEST Engineering Laboratory Inc. and Group Leader of the Electromagnetic Compatibility (EMC) department of Akzo Kashima Ltd. His expertise includes EMC, radio, specific absorption rate (SAR), hearing aid compatibility (HAC), battery safety, CDMA and LTE conformance/OTA. Mr. Tanuma is a National Association of Radio and Telecommunication (NARTE) certified electromagnetic compatibility (EMC) Engineer. He has been performing NVLAP assessments of laboratories since 1997.

David Waitt is an electrical engineer and computer scientist based in San Jose, CA. Having worked in the regulatory field for 20 years and as an electromagnetic compatibility (EMC) assessor for over 10 years, Mr. Waitt has extensive knowledge and experience in EMC, radio frequency (RF), specific absorption rate (SAR), safety, and battery testing. His work experience includes engineering positions at California Microwave, Metricom Inc. and Handspring. Now an independent regulatory consultant, Mr. Waitt specializes in helping manufacturing companies meet international regulatory requirements while also operating as a NVLAP assessor.

Derek Walton is an electrical engineer and owner of L.F Research which provides EMC Design Consulting and testing services to small businesses. Prior to starting L.F. Research, he worked as a senior engineer at Barber-Coleman Industrial Instruments, Honeywell and Sundstrand. He has extensive experience (30 years) in the EMC industry, serves on numerous committees, has authored papers and holds a number of patents. Mr. Walton is also a NARTE Certified EMC Engineer, a recognized AEMCLRP and Bluetooth Assessor (BTA), and past Chairman of IEEE EMC Society Chicago Chapter.

David Zimmerman is President of Spectrum EMC Consulting, LLC. He has over 30 years of experience in the electromagnetic compatibility (EMC) field. He has been a National Association of Radio and Telecommunication (NARTE) certified electromagnetic compatibility (EMC) Engineer since 2002 and a member of the Institute of Electronics and Electrical Engineers (IEEE) since 1997. Mr. Zimmerman is also a member of the Radio Technical Commission for Aeronautics (RTCA) and the C63® Electromagnetic Compatibility Main Committee. He has been a Lead Assessor for NVLAP since April 2012.

DRAFT

Procedure for the transition a NVLAP designation of a testing laboratory (to the FCC) to the Designating Authority (DA) of a new Telecom MRA Partner

Introduction

NVLAP is recognized by the FCC as a Test Firm Accrediting Body (TFAB) to designate U.S. testing labs and labs in the following specific non-MRA countries: TBD.

In the event that an MRA becomes operational between the U.S. and a current non-MRA country for which NVLAP has been recognized, it will be necessary for NVLAP to transition the designation process to the Designating Authority (DA) of the new Telecom MRA partner. This procedure describes the basic steps that NVLAP will take to transition the designation.

Transitioning Designation

NVLAP will work with appropriate U.S. government agencies (USTR, FCC, NIST) to obtain the relevant information on the transition dates for when the new MRA Partner DA will assume the designation function.

NVLAP will notify, in writing, all of its accredited testing laboratories within that country to inform them that NVLAP will no longer be able to designate their laboratory to the FCC as of a certain date.

Following guidance given by the FCC, NVLAP will withdraw the relevant designations at the appropriate time, providing all cooperation necessary.

Acceptance of NVLAP Accreditation by new MRA Partner

If NVLAP's accreditation will be accepted by the new Telecom MRA Partner DA, this information will be provided to the laboratories as well.

NVLAP will arrange to be recognized by the foreign MRA partner if this is a necessary step.

Should the foreign MRA partner not accept NVLAP accreditation for the designation of the labs in their country, NVLAP will communicate to its accredited laboratories that NVLAP accreditation will not be accepted and it will be necessary for the lab to obtain accreditation from the AB specified by the new MRA Partner.

NVLAP will provide the necessary contact information to the labs so that they may obtain more information from their country authorities.

APLAC

Asia Pacific Laboratory Accreditation Cooperation

APLAC MUTUAL RECOGNITION ARRANGEMENT

AN ARRANGEMENT TO GRANT RECOGNITION

Having fulfilled the requirements of the APLAC Mutual Recognition Arrangement, **NVLAP, United States of America** is a signatory to the Arrangement.

APLAC MRA signatories:

(i) use equivalent procedures under ISO/IEC 17011 in the accreditation of laboratories against ISO/IEC 17025, medical laboratories against ISO 15189 and inspection bodies against ISO/IEC 17020;

(ii) recognise, within the scope of recognition of this MRA, the accreditation of a laboratory or inspection body by other signatories as being equivalent to an accreditation by its own organisation;

(iii) recommend and promote the acceptance by users in their economies of endorsed test, calibration and inspection reports issued by laboratories and inspection bodies accredited by APLAC MRA signatories;

(iv) investigate complaints initiated by a signatory resulting from test reports and calibration certificates issued by their accredited testing and calibration laboratories and/or inspection reports issued by their accredited inspection bodies; and

(v) inform one another, as soon as possible, of any significant changes in the status and/or operational practices in their accreditation bodies.

Accreditation Body: National Voluntary Laboratory Accreditation Program

Economy: United States of America

Scope of Recognition: Testing/Calibration

Date of Signing APLAC MRA: 19 November 1997

A J Russell
APLAC Chair

Inter American Accreditation Cooperation

Be it known that the

National Voluntary Laboratory Accreditatoin Program (NVLAP)

UNITED STATES OF AMERICA

has been accepted as a Member of the

Inter American Accreditation Cooperation

Multi-lateral Recognition Arrangement

For

Accreditation Bodies of Testing and Calibration Laboratories (ISO/IEC 17025)

The Member on behalf of which this sheet is signed is committed to complying with the requirements and obligations of the IAAC MLA.

Sally Bruce
Chief of NVLAP

Beatriz García
IAAC Chair

Mauricio Soares
IAAC MLA
Committee Chair

Signed in San Jose, Costa Rica, on September 4th, 2009.
Approval date: August 30th, 2009.

ILAC MUTUAL RECOGNITION ARRANGEMENT

SIGNATORIES

We, the undersigned, endorse the terms of the ILAC Arrangement and undertake, to the best of our ability, fulfillment of its objectives.

Accreditation Body: National Voluntary Laboratory Accreditation Program (NVLAP)

Economy: USA

Scope: Testing & Calibration

Authorized Representative: David Alderman

Signature: David Alderman Date: 02-11-00
David Alderman

Chairman, ILAC Arrangement Council:

Signature: Belinda L Collins Date: 02-11-00
Belinda L. Collins, PhD

Annex G

Description of NVLAP's on-site assessment intervals and renewal process

Overview

This annex provides a description of NVLAP's on-site assessment intervals in the context of the renewal process, along with an illustrative example for a fictional laboratory (Laboratory ABC).

NVLAP accreditation is valid for one year. An accreditation will expire after one year unless it is renewed by the laboratory.

An initial accreditation may be granted during any time of the year. When NVLAP determines that the laboratory has met all requirements for accreditation, the NVLAP chief grants the accreditation. The expiration date of the initial accreditation must be one of four dates (December 31, March 31, June 30, or September 30), chosen to be the closest to 12 months from the accreditation's effective date. Therefore, a laboratory's annual accreditation period is one of the following: January 1 through December 31; April 1 through March 31; July 1 through June 30; or October 1 through September 30.

Prior to the expiration date of the initial accreditation period, the laboratory applies for renewal of its accreditation. NVLAP reviews the documentation provided by the laboratory with its application (a surveillance activity), as well as information from the previous on-site assessment. If the laboratory continues to meet the accreditation requirements, NVLAP renews the accreditation and schedules another on-site assessment to be performed as soon as possible during the second period of accreditation. NVLAP can only schedule the on-site assessment after the laboratory's renewal application is received and the on-site assessment fee is paid.

Note: NVLAP is a U.S. federal government accrediting body and is subject to the government procurement regulations. Therefore, NVLAP cannot legally assign an assessor or schedule the on-site assessment of a laboratory until the accreditation fees have been collected with a laboratory's application to NVLAP.

For these reasons, the renewal timeline for a NVLAP laboratory may appear to be confusing to those unfamiliar with the process. In actuality, an on-site assessment is performed well in advance of the next renewal date. The decision whether or not to renew an accreditation is based upon the on-site assessment that took place within the 12-month period preceding the decision.

When the renewal application, including supporting documentation and appropriate accreditation fees, is received, NVLAP takes the appropriate steps as shown in the following illustration. After the second period of accreditation (described above in the third paragraph), a full reassessment occurs every two years.

Illustration of a laboratory renewal timeline

Laboratory ABC first applied for accreditation on 15 March 2014 and the first on-site assessment was performed on 1 June 2014. Initial accreditation was granted on 1 August 2014 with an expiration date of 30 June 2015. NVLAP could not schedule a second on-site assessment until after the fees for the second assessment could be collected with the next application (due before the expiration date of 30 June 2015).

Therefore, the second on-site assessment was scheduled, in accordance with NVLAP policy as stated in NIST Handbook 150, 3.2.3.3, as soon as possible after 1 July 2015. As soon as the on-site fee was collected, NVLAP assigned an assessor and scheduled an on-site visit during what NVLAP terms "the first renewal year" (see table below). The on-site assessment was completed on 15 September 2015, and the laboratory maintained its accreditation.

As shown, the on-site conducted on 15 September 2015 was the requisite on-site for the renewal cycle beginning 1 July 2016 (not 1 July 2015), since NVLAP, as a federal government body, must collect the fees for an on-site assessment BEFORE the assessment can be scheduled and conducted. In this example, the fees were collected just prior to the cycle with the beginning date of 1 July 2015 so that the on-site assessment could be conducted within the time window beginning 1 July 2015 and ending 30 June 2016. This allows the laboratory to be renewed on 1 July 2016. The process repeats every other year and allows NVLAP to conduct full reassessments at intervals not exceeding 2 years in compliance with ISO/IEC 17011: 2004, 7.11.3.

Illustration of a laboratory with a July renewal cycle

Accreditation Period	Accreditation Activities
1 August 2014 to 30 June 2015 (year #1 – initial accreditation period)	← 15 March 2014: Initial application received. ← 1 June 2014: Initial on-site assessment completed. ← 1 August 2014: Initial accreditation granted based upon documentation review and on-site assessment completed on 1 June 2014. ← 7 May 2015: Annual application and fees were received in order for accreditation to be renewed on 1 July 2015. The fees collected also included the fee for the second full on-site assessment to be conducted during the time period of 1 July 2015 to 30 June 2016, in order that the lab might be renewed on 1 July 2016. (Fees must be collected in advance of the performance of the on-site assessment.)
1 July 2015 to 30 June 2016 (year #2 - first full renewal year – see NIST Handbook 150, 3.2.3.3)	← 1 July 2015: Accreditation is renewed based upon documentation review (a surveillance activity). ← 15 September 2015: Full on-site assessment is completed, which IS required for next renewal on 1 July 2016. ← 3 May 2016: Annual application and fees were received in order for accreditation to be renewed on 1 July 2016. No on-site assessment fee was collected since on-site was performed on 15 September 2015.

Accreditation Period	Accreditation Activities
1 July 2016 to 30 June 2017	← 1 July 2016: Accreditation is renewed based upon documentation review AND completion of on-site assessment on 15 September 2015. ← 8 May 2017: Annual application and fees were received in order for accreditation to be renewed on 1 July 2017. The fees collected also included the fee for an on-site assessment to be conducted during the time period of 1 July 2017 to 30 June 2018, in order that the lab might be renewed on 1 July 2018. (Fees must be collected in advance of the performance of the on-site assessment.)
1 July 2017 to 30 June 2018	← 1 July 2017: Accreditation is renewed based upon documentation review (a surveillance activity). Renewal did not require an on-site during the previous 12 months. ← 1 September 2017: On-site assessment is completed, which IS required for next renewal on 1 July 2018. ← 4 May 2018: Annual application and fees were received in order for accreditation to be renewed on 1 July 2018. No on-site assessment fee was collected since on-site was performed on 1 September 2017.
1 July 2018 to 30 June 2019	← 1 July 2018: Accreditation is renewed based upon documentation review AND completion of the on-site assessment on 1 September 2017. ← 24 May 2019: Annual application and fees were received in order for accreditation to be renewed on 1 July 2019. The fees collected also included the fee for an on-site assessment to be conducted during the time period of 1 July 2019 to 30 June 2020, in order that the lab might be renewed on 1 July 2020. (Fees must be collected in advance of the performance of the on-site assessment.)
1 July 2019 to 30 June 2020	← 1 July 2019: Accreditation is renewed based upon documentation review (a surveillance activity). Renewal did not require an on-site during the previous 12 months. ← 12 September 2019: On-site assessment is completed, which IS required for next renewal on 1 July 2020. ← 7 May 2020: Annual application and fees were received in order for accreditation to be renewed on 1 July 2020. No on-site assessment fee was collected since on-site was performed on 12 September 2019.